

TRIAL EXHIBIT 2237

(PART 3 OF 3)

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to the fact that the market is a source of information for the public, and the public is a source of information for the market.

୧୮୫୫-୫୬: ଉତ୍କଳୀୟ ଶାନ୍ତି ସମାଜର ସ୍ଥାପନା

174 **Market size:** The total worldwide revenue for server operating systems (Microsoft Windows, Linux) has increased from a single digit in 1990 to \$1 billion approximately by 1994. The revenue in 1996 amounted to \$150-175 billion (approximately). At 2001, the revenue of the OS market is projected to be \$1.45 billion.

13. *Generalization*. The reason, given here, about why the (q, c) pairs in the first set of queries in a compiling phase are better specified relative to the second, is less satisfactory. See [18, 19].

Library of Theological Studies, Department of Theology, University of Toronto

Case	Age	Sex	Duration of disease	Initial symptoms	Initial treatment	Outcome
1	10	F	10 years	Weight loss, fatigue, and weakness	Insulin	Stable
2	12	M	5 years	Weight loss, fatigue, and weakness	Insulin	Stable
3	15	F	3 years	Weight loss, fatigue, and weakness	Insulin	Stable
4	18	M	2 years	Weight loss, fatigue, and weakness	Insulin	Stable
5	20	F	1 year	Weight loss, fatigue, and weakness	Insulin	Stable
6	22	M	6 months	Weight loss, fatigue, and weakness	Insulin	Stable
7	25	F	4 months	Weight loss, fatigue, and weakness	Insulin	Stable
8	28	M	3 months	Weight loss, fatigue, and weakness	Insulin	Stable
9	30	F	2 months	Weight loss, fatigue, and weakness	Insulin	Stable
10	32	M	1 month	Weight loss, fatigue, and weakness	Insulin	Stable

10. *Journal of the American Statistical Association*, 1999, 94, 1, 1-10. <http://www.jstor.org/stable/1189790>

^a Data from 1970-1986; see text.

[illegible][illegible]

¹ Das „steigende“ materielle Wohlbefinden (1973/74) wird neben einem Anstieg der durchschnittlichen Lebenserwartung (1973/74) festgestellt.

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Source: IDC, Worldwide Data and Server Operating Environments 2006-2012 Forecast: The Era of Hyperconverged Transitions, April 2008, IDC, Worldwide Data Operating Environments 2006-2012 Forecast: Turning a Page from the Long Recession, April 2008

C.2 Server hardware

- 178 **Market size.** The total worldwide revenue for server hardware (Server Factory Revenue) in 2007 amounted to USD 34.4 billion (approximately EUR 38.8 billion) according to IDC,¹⁷⁸ with a growth rate in 2007 of 3.6%.
- 179 **Vendor shares.** The table below shows the shares (by revenue) of Sun and other players on a worldwide basis for server hardware for 2006 and 2007 as estimated by IDC:

Table 13: Server Factory shares by vendor 2006-2007

[REDACTED]			
		2006	2007
1	IBM	12.7	31.9
2	Hewlett-Packard	27.1	28.3
3	Dell	10.4	11.1
4	Sun	10.9	10.5
	Emulex/Topix/Symantec	5.1	4.9
6	NEC	2.2	1.9
7	Hitachi	1.2	1.1
Total		100	100

Source: IDC, Worldwide and U.S. Server 2007 Vendor Shares, April 2008.

¹⁷⁸ As explained, the market shares are slightly overestimated, since the total sum of the market shares is above 100.0%.

¹⁷⁹ IDC, Worldwide and U.S. Server 2007 Vendor Shares, April 2008.

¹⁸⁰ Total Sun server sales for FY08 were (USD) 5,803,380,000 with a margin (defined as net revenues - manufacturing costs) of 33.8%. These amounts do not include service revenues (e.g., support, professional consulting, training). There are other costs that are not included in these margin calculations.

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C.3 Absence of conglomerate effects with regard to database, middleware, server hardware and operating systems software

180. **Generally.** The proposed Transaction will not enable Oracle to increase its market share or pricing in any market as a result of tying or bundling. In particular, Oracle will not be able to use its position in the database market to protect that position or increase market share or prices related to middleware, server hardware or server operating systems software. A conglomerate theory would be based on one of the following propositions:
- Oracle would try to move Sun middleware, server hardware or server operating systems customers onto an Oracle database by providing inferior or no support for Sun products on non-Oracle databases or tying or bundling Sun middleware, server hardware or server operating systems to Oracle databases, thereby foreclosing competing database suppliers; or
 - Oracle would try to move Oracle database customers onto Sun server hardware or operating systems by tying or bundling Oracle database with Sun server hardware or operating systems, thereby foreclosing competing server operating systems and hardware suppliers.
181. Neither proposition makes economic sense because Oracle lacks the ability and the incentive to act accordingly. While it is true that the proposed Transaction will permit Oracle to offer more attractive product packages to those customers who value such packages from a single vendor, as described in Section 9, this will lead to clear benefits for both existing and new customers. These effects are plainly efficiency benefits – in that they expand the options open to customers, and enhance the range of possibilities – and not adverse conglomerate effects on competition. This follows because Oracle will have a continued incentive to offer all of its products as separate components and to ensure that they work effectively with rival suppliers' products. In line with the Commission's guidelines on non-horizontal mergers, these aspects of the Transaction should be viewed as unambiguously positive for customer and consumer welfare.¹³¹ Post-Transaction, Oracle will not be the only vendor that can offer most elements of the stack. IBM, Microsoft and Hewlett-Packard, among others, can also offer a stack solution alone or in conjunction with their partners.
182. ***Migration of Sun middleware, server hardware or server operating systems customers onto Oracle database.*** Oracle has already publicly committed to support customers' investments in existing Sun products. Customers who

¹³¹ See the Commission's *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*, paragraphs 13-14.

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wish to run Sun's products with a non-Oracle database will continue to be free to do so and are not required to switch to an Oracle database if they believe their existing database better suits their needs. Oracle has already demonstrated its commitment to database-agnostic support for acquired customers after each of its major acquisitions. It should be noted that many of Oracle's software offerings already support multiple databases, including Microsoft SQL Server, IBM DB/2 UDB, IBM DB/2 Mainframe, Sybase, Informix, Teradata, Netezza and Oracle.¹³² Oracle's products would lose appeal if adoption required customers to abandon investments in their existing technology implementations.

183. Moreover, Oracle's consistent business strategy has always been to make its products interoperable with the products of as many vendors as possible, to appeal to the broadest audience possible. Oracle has always endorsed open standards and interoperability rather than proprietary protocols. Oracle has followed this approach as a matter of self-interested commercial strategy whereby Oracle has recognised that it would deny itself a substantial share of any enterprise software market if it followed a closed model. It has instead sought to make its products attractive to customers irrespective of their prior software choices and to third-party developers seeking to make their products interoperate with those of Oracle. For example, a key characteristic and selling point of Oracle's Fusion software line that it is "hot-pluggable" – Oracle's branding for standards-based interoperability with other systems.¹³³

¹³² Most of the applications in Oracle's extensive application portfolio run on multiple databases, in addition to the Oracle database. All PeopleSoft, Siebel, JD Edwards, Hyperion, and Oracle BI applications run on multiple vendor databases – including Oracle, Microsoft SQL Server and IBM DB/2. Oracle BI Applications in addition support Teradata as a Data Warehouse Database. Moreover, most of Oracle's industry applications (*i.e.*, applications developed with a particular industry in mind) run on top of most major databases. The Oracle e-business suite supports only the Oracle database.

¹³³ See also Annex 1, response to questions 20, 31-32. One of the distinguishing characteristics of Oracle's software is the commitment to all operating environments. Oracle makes its Java-based products – Development Tools Fusion Middleware, and e-Business Suite (Applications) – available on Linux, Windows, Solaris, HP-UX, and AIX Operating Systems on both 32-bit and 64-bit configurations. Oracle tests its products on all these different operating systems and there are no known interoperability issues between Oracle's Java products and these different operating systems. Oracle has customers who are running its middleware and applications in production on all these different operating systems.

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184. "Hot-pluggability" enables customers to mix and match various Oracle Fusion products with other products (Oracle and non-Oracle). By ensuring that its newest products work in a hot-pluggable manner, Oracle makes it easy for customers to adopt new pieces of its product portfolio without having to replace their existing investments. It also helps Oracle enter new customers' accounts that may have already made a decision to use another vendor's products.¹³⁴
185. Similarly, a crucial element in Oracle's success in database has been its consistent policy of openly and actively sharing all necessary interface information with all interested vendors. Oracle has pursued this policy in order to ensure that the greatest possible number of applications is available for, and can use the full functionality of, Oracle's database. The Oracle database runs on nearly all of the significant operating systems, including

¹³⁴

It is generally understood that the cost of integrating different vendors software so they work well together could cost as much as 6 to 8 times the initial cost of the software license. SIs, such as IBM Global Services, specialise in building custom software solutions so different software systems work together. The only way for a customer not to "incur any costs" is for software developers to provide pre-integrated systems and allow very little flexibility for customisation. The way for software developers to minimise the cost of integration is to comply fully with public, widely used standards and to disclose other interfaces fully. Customers, in other words, face a trade-off. The lower the integration costs, the less choices a customer can make, both in their own existing heterogeneous systems and in any third-party systems they may wish to add later. Oracle's goal is to reduce the costs of integration as much as practical by using standards whenever possible and to disclose other interfaces fully through our developer network. Oracle does so to reduce the customers' "trade off" and to increase choice while enabling interoperability. This enables customers to choose from different vendors solutions, while reducing the cost of integration.

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Windows, Unix and Linux. Oracle's middleware, specifically, Oracle's Enterprise Application Server (J2EE Application Server) has always supported a variety of databases including for example multiple versions of Oracle, Microsoft SQL Server, IBM DB/2, Sybase and Informix. Oracle packages and provides the connectivity drivers (also called JDBC Drivers) for its Enterprise Application Server to connect to these databases at no cost to any customer, ISV or partner that licenses its Enterprise Application Server. This has been the technical reality of Oracle's middleware both prior to and after Oracle's acquisition of BEA Systems.

186. Oracle also has a large portfolio of enterprise applications, including the Oracle E-Business suite, PeopleSoft, Siebel, and Hyperion. The E-Business suite was originally engineered to take advantage of some features of the Oracle database when Oracle was not at all present in the applications market. Oracle has seen no customer demand to run the Oracle E-business suite on Microsoft or IBM. Conversely, Oracle has supported all of its acquired applications on all databases and has continued to deliver new releases, which support all database technologies. Regarding Oracle's view of interoperability, Oracle works extremely hard to ensure that the E-Business suite can interoperate – using industry standards – with other horizontal applications and one often sees the E-Business suite running along side PeopleSoft, Siebel and SAP.
187. Oracle's policy with respect to openness and interoperability has not changed after any of its acquisitions over the past years, nor will it change following the Transaction. Oracle would have no incentive to change its long-standing commitment to interoperability as a result of the Sun acquisition, as Oracle's products would lose appeal if Oracle required customers to abandon investments in their existing technology implementations.
188. Consistent with its policy of openness and interoperability for its existing products, Oracle does not intend to prevent Sun customers from using non-Oracle database products. Quite simply, any attempt by Oracle to compel Sun customers to use Oracle's database products would be met with great resistance from those customers, and the existing Sun customers Oracle would likely lose as a result could readily exceed the Oracle customers it would likely gain. Indeed, Oracle would be foolish to reverse a strategy that is fundamental to its core business and which has formed the centrepiece of its customer-facing sales proposition.¹³⁵

¹³⁵

The quality of an Operating System implementation can influence the performance of a software product. Oracle shares benchmark results and performance tests with Operating Systems vendors so those vendors can continue to improve the quality of their Operating System implementations when running software products like Oracle's. It is also why Oracle invests in creating Linux enhancements which Oracle contributes back to the Linux "mainline", the source of all Linux distributions. What is

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189. While the evidence clearly shows that Oracle has not sought to close off any part of its offering after previous acquisitions, notably in the enterprise applications and middleware space, the same logic is at work even more obviously in the context of the present Transaction.
190. In conclusion, there is no factual basis, on a technical or commercial level, for any bundling/leveraging theory of competitive harm.
191. ***Migration of Oracle database customers to Sun server hardware and operating systems.*** Similarly, Oracle has no ability or incentive to foreclose future competitors in the server hardware or server operating systems markets by bundling or tying or degrading the performance of Oracle database on alternative platforms.¹³⁶ Oracle has publicly stated that “[w]ith the acquisition of Sun, Oracle can optimise the Oracle database for some of the unique, high-end features of Solaris.” However, Oracle database and Solaris will remain available separately, and Oracle will continue to disclose interoperability information with the aim of ensuring that Oracle database is adopted and supported as widely as possible. That Oracle lacks the ability and incentive to do otherwise is evident in view of the following:
- ***Server operating systems.*** 75% of Oracle’s database installations run on operating systems other than Sun Solaris.¹³⁷ Oracle is a strong supporter of the Linux operating system and has very substantial business with Hewlett-Packard, IBM and Microsoft Windows operating systems. Its success in databases has been built on its reputation for cross-platform portability (multiple operating systems) and performance, and no strategy that jeopardises this reputation would be profitable. Oracle will continue to support and enhance industry partnerships with companies such as Dell, Fujitsu, HP and IBM to ensure ongoing support for the best platforms to provide customers with the investment protection and choices they require. By way of example, Oracle provides support for the

not feasible is modifying an Operating System for the benefit a product offered by a one vendor, without benefiting similar products offered by other vendors. For example, one set of Linux enhancements donated by Oracle improves the performance of disk reads and writes. Those changes improve the performance of the Oracle database on Linux. They also improve the performance of every other database on Linux, such as IBM’s DB2.

¹³⁶ The characteristics of a server influence the performance of a software product running on the server. Oracle shares benchmark results and performance tests with server vendors so those vendors can improve the performance of their servers when running software products like Oracle’s. What is not feasible is building a server to favour a product offered by a one vendor over similar products offered by other vendors. For example, the memory access patterns of large Java programs are not well localized. That means a larger processor memory cache would benefit Oracle’s Java-based Fusion Middleware. But a larger processor memory cache would also benefit Red Hat’s Java-based JBOSS middleware.

¹³⁷ In terms of all Oracle software, Oracle estimates that the percentage of its software that runs on non-Sun operating systems is approximately 85-90%.

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following hardware platforms and operating systems: HP - (HP-UX, OpenVMS, TRU64), IBM - (AIX, zOS, i5OS, Linux for Power, Linux for zPlatforms), Dell - (Windows and Linux), NEC - (Windows and Linux), Hitachi - (Windows and Linux), Fujitsu - (Solaris, BS2000, Windows, Linux), Stratus - (VOS), Apple MacIntosh - (Mac OS X), Microsoft - (Windows 2003, Windows 2008, Windows XP, Vista), Linux - (Red Hat, Novell SUSE Linux, Asianux Server), Intel/AMD - (x86 (Windows, Linux, Solaris x64), Intel Itanium (HP-UX, OpenVMS, Windows, Linux). In addition Oracle supports Solaris x86-64 for Dell, HP and IBM platforms.

- **Server hardware.** Sun's share of the server market is a mere 10% by revenue and 4.1% by shipments. Oracle has important partner relationships with all server vendors (IBM, Hewlett-Packard, Dell, Fujitsu, etc.). It is first and foremost a software company; sacrificing software sales for low-margin hardware sales would be irrational. Moreover, any attempt by Oracle to foreclose rivals by tying or bundling its database with Sun hardware would be met by strong competition from alternatives such as IBM.
192. In sum, the fact that any tying/bundling strategy would (i) simply not be profitable, (ii) face counter-strategies from rival firms and (iii) be contrary to Oracle's established track record of previous acquisitions, makes the occurrence of conglomerate effects as a result of this Transaction implausible. Now, of course, these market shares also limit the extent to which huge efficiencies can be attained from the Transaction: this is because it is often the case that the incentives to engage in anticompetitive conduct are positively correlated with market shares up and down the vertical stack. Here, the available efficiencies are clearly cognisable but subject to competitive realities as well as the historical openness-driven strategy chosen by Oracle.

7.4 *the name, address, telephone number, fax and e-mail address of the head of the legal department (or other person exercising similar functions; and in cases where there is no such person, then the chief executive) for the competitors identified under 7.3;*

193. *See Annex 9.*

7.5 *an estimate of the total value and volume and source of imports from outside the EEA territory and identify:*

- (a) *the proportion of such imports that are derived from the groups to which the parties to the concentration belong,*
- (b) *an estimate of the extent to which any quotas, tariffs or non-tariff barriers to trade, affect these imports; and*

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- (c) *an estimate of the extent to which transportation and other costs affect these imports.*

194. Not applicable.

7.6 *the extent to which trade among States within the EEA territory is affected by:*

- (a) *transportation and other costs; and*
(b) *other non-tariff barriers to trade;*

195. Transportation costs and other non-tariff barriers are not a significant factor in the software market in general, and the same applies to the database and middleware markets.

7.7 *the manner in which the parties to the concentration produce, price and sell the products and/or services; for example, whether they manufacture and price locally, or sell through local distribution facilities;*

A. Software

196. ***Software Development.*** Software development is conducted both in-house by software vendors and on an out-sourced basis by independent contractors. Software development today often takes place among multiple groups of development engineers who are geographically dispersed. Software is created in development centres in the US, Europe, Asia and elsewhere.
197. Oracle develops the majority of its products internally and has acquired new technologies through the acquisition of other companies. Oracle also licenses intellectual property rights in certain circumstances.
198. Similarly, Sun conducts most of its development of new products and enhancements to existing products internally, with acquisitions to complement and supplement the product development pipeline when deemed necessary. Sun's Product Life Cycle ("PLC") process is a system Sun uses to guide development. *See Annex 14* for further details. The product engineering team and product management teams work together on developing an outline of the specification and requirements for the new product. Funding is allocated from an existing budget. A product team is assigned and roadmaps and milestones are derived from the outline mentioned above. The development, release and end-of-life processes are outlined in the PLC. [REDACTED] of Sun's research and development ("R&D") is spent on new development; [REDACTED] is spent on sustaining. Only [REDACTED] of the total R&D budget is spent on third-party, contract or external development. Sun's PLC process accommodates inputs and contributions from the open-source or developer communities, if applicable.

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199. Developers are viewed by Sun as an external extension of Sun's research and development resources. Sun's investment and relationship with the developer community varies by project and can include code contributions, feedback, forums, contests, standards partnerships, and hiring/retaining/encouraging community focused developers. Examples of Sun developer communities include OpenOffice, Glassfish, NetBeans (particularly for plugins), OpenSolaris, OpenJDK, MySQL. Forums that support Sun's relationship with developers include:

- JavaOne (a Java developer conference)
- Sun Tech Days (a series of global developer events held across 30 countries)
- Java User Groups
- OpenSolaris User Groups
- The JEDI Program (Java Education and Development Initiative)¹³⁸
- Open Source University Meet-ups

Portals that support Sun's relationship with developers include:

- Developer.sun.com and java.sun.com (aka Sun Developer Network-SDN)
- Java.net
- MySQL.org
- OpenSolaris.org
- OpenJDK.org
- kenai.com

200. *Oracle's sales organisation.* In the US, Oracle markets its database, middleware and applications products primarily through its own sales

¹³⁸ The JEDI Program is run by Sun through the University of the Philippines Java Research and Development Centre. It is a collaborative project between Sun and various member schools or universities that aims to make high-quality, industry-endorsed I T and Computer Science course material available for free. Sun provides members with teacher training and a helpdesk. In return, members have to provide Sun with feedback and statistics on the course. They are also expected to encourage their teachers to contribute to the JEDI Program. The JEDI Program is run in emerging market countries (e.g. Indonesia and Brazil) to improve local IT programmers' skills in open source technologies, such as Java technologies and Open Solaris.

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organisation located in the US and abroad. Oracle's subsidiaries abroad license and support products locally, as well as within other foreign countries where Oracle does not operate through a direct sales subsidiary. Oracle also markets its products worldwide through indirect channels. The companies that comprise Oracle's indirect channel network are members of the "Oracle Partner Network" (see Section 8 below).

201. ***Sun's sales organisation.*** Sun's software sales organisation is comprised of four major sales teams that roll into one centralised software sales team. The four major sales teams are as follows:

- **Direct Sales** – The direct sales team has two centralised software teams, one for Middleware/Java and one for MySQL. The direct sales team also has regional representatives. These teams are focused on larger direct Sun-to-customer deals. Leads are generated through "high-touch" marketing programs and through regional field marketing.
- **Channel** – Sun's marketing program for channel partners is the Sun Partner Advantage program, managed by the Global Channel Marketing team. Local software sales teams manage the relationships with the participating partners. Sun has a wide variety of software channel partners, ranging from those with extensive implementation and deployment expertise to "fulfilment partners" that do little demand generation. Sun currently has 300 specialty partners worldwide that have proven abilities to sell and deploy Sun Software.
- **OEM Sales** – Sun has two centralised teams, one for Middleware/Java and one for MySQL. The OEM sales teams sell large long-term contracts to telecommunications customers and other equipment and service providers. Leads are generated through high-touch marketing programs and targeted outreach.
- **Telesales** – Sun's centralised telesales team reports into the centralised sales team, which sells Sun's lower-end products. Leads are generated through online marketing campaigns. Telesales make up a very small percentage of Sun's overall revenue and relate predominantly to MySQL.

The sales team is supported by a separate Sun-owned sales engineer team and professional services team. These sales engineering resources provide deep technical skills to accommodate the sales process and the Professional Services team provides integration services, including getting the products to run in and/or be optimised for standard or custom customer environments. In addition, professional services are sometimes outsourced to partners such as Accenture, IGS or boutique professional firms and channel partners.

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202. **Pricing of Oracle software.** Pricing of software is dynamic, deal- and customer-driven. In the case of traditional software vendors (*i.e.*, excluding open source) the cost of software to the customer includes the following components (not all of which are necessarily revenues accruing to the vendor, depending on whether the implementation work is undertaken by the vendor or one of its partners):

- **Licensing costs.** Databases and middleware are licensed on a “perpetual” basis by either the number of named users or server processing capacity (for example, in an externally facing application where named users cannot be counted). A database license has no set duration. A newer practice is to offer customers the choice of an Enterprise License Agreement (“ELA”), which gives customers the right to use an unlimited number of licenses for a set fee. These fees are typically negotiated based on anticipated use and expire after two or three years.
- **Maintenance.** (which in the case of Oracle includes bug-fixes and updates, including free product upgrades) and support, further details on which are provided below and in Section 8; and
- **Implementation costs.** (the costs of configuring, integrating and customising the software). Such costs are very significant (typically representing several times the cost of the software license itself). Implementation costs cover not only deployment costs but also training costs and the cost of integrating software and hardware solutions. Implementation will typically be sourced from more than one vendor. Implementation costs may also include the cost of customising software solutions to the individual needs of a customer.

203. List prices for Oracle products are determined after a multi-step process. Product development teams propose product-pricing structures, with consultation and assistance of Oracle’s Global Practices team. The proposed pricing is then approved by the CEO’s office before being formally added to the price list. Products are typically sold at a discount to list price. Discount approval thresholds for sales and other personnel are established by the CEO’s office from time to time and any non-standard pricing terms, including any proposed discounts in excess of those thresholds, must receive prior approval through a centralised source (internally referred to as HQ Apps), with ultimate approval by the CEO’s office. A number of factors are considered in establishing list prices and discount approvals, including, without limitation, the nature of the product, size of a given transaction, scope of a particular deployment, competition from other vendors and strategic considerations for specific deployments with specific customers.

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204. **Pricing of Sun software.** Sun's software pricing is defined by Software Product Management and is governed by the internal Sun Software Pricing Council. The software business unit ("BU") sets the US list price, which is considered to be the master price list. Uplifts and exchange rates are applied in the countries based on pre-defined guidelines, which are calculated by reference to the discount category for the product. Sun licenses its open-source software under the General Product License GPLv2 and the Common Development and Distribution License ("CDDL"), which are both Open-source Initiative ("OSI")-approved licenses.¹³⁹
205. As discussed in Section 6, GPLv2 stands for the GNU General Public License, version 2.¹⁴⁰ It was first written in 1989 and is a widely used free software license. It is the most popular and well-known example of the type of strong "copyleft" license that requires derived works to be available under the same copyleft. In other words, it requires that an author surrender some but not all rights under copyright law. The GPL grants the recipients of a computer program the rights of the free software definition and uses copyleft to ensure the freedoms are preserved, even when the work is changed or added to. Version 1 was released in 1989 and version 2, used by Sun, was released in June 1991. It includes a clause, the so-called "liberty or death" clause, that states that if a GPL licensee has restrictions imposed that prevent it from distributing GPL-covered software in a way that respects other users' freedom, the software may not be distributed.
206. CDDL is a free software license¹⁴¹ which is produced by Sun Microsystems and is based on the Mozilla Public License ("MPL"), version 1.1. It is possible to combine the files that are licensed under the CDDL with files licensed under other open-source or proprietary licenses. The CDDL was submitted for approval to the Open Source Initiative in December 2004 and was approved as an open source license in January 2005.
207. The table below lists Sun products and the open-source licenses under which they are licensed:

Table 14: Sun products and open source license type

Product	License
Open SSO	CDDL

¹³⁹ OSI was founded in February 1998 and is dedicated to promoting open-source software.

¹⁴⁰ The license is available at <http://www.gnu.org/licenses/gpl-2.0.txt>.

¹⁴¹ The full license is available at <http://www.sun.com/cddl/cddl.html>.

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Open DS	CDDL
GlassFish ESB	GPLv2
MySQL Enterprise Server	GPLv2
Java EE	GPLv2
GlassFish	GPLv2/CDDL
Java ME	GPLv2
Java Realtime	GPLv2
Java Card	GPLv2
JDK	GPLv2
Java SE for Business	GPLv2
Java SE Embedded	GPLv2

208. ***Oracle Maintenance & Support.*** Oracle customers have the option of acquiring annual support at the time of license sale and on an annual renewal basis thereafter. Although customers are free to purchase licenses only, customers in practice generally do not purchase licenses without also purchasing maintenance and support. Maintenance (which in the case of Oracle includes bug-fixes and updates, including free upgrades) and support services (which include telephone assistance in resolving issues regarding the use of software) are priced separately from licensing costs. Support pricing is normally 22% of the net software license fees. Oracle's software license updates and product support revenues represented 46% of total revenues in each of the last three fiscal years.

209. ***Sun Maintenance & Support.*** Sun has a general software support program and specific support programs for MySQL and middleware OEM customers:

- Under Sun's general software support program, customers can choose the level of support they receive, based on their resources and requirements (*see* Section 8, paragraph 243). Sun's support services revenues represented 29%, 29% and 28% of total revenues in each of the 2008, 2007 and 2006 fiscal years. Support is priced as a percentage of the list price of the license. Standard Support is defined as a percentage of list price of the license (usually in the 17%-20% range), varying by product. The pricing of other levels of support are derived from the standard level of service using the following ratios: Basic = 75% of Standard; Premium: 120% of Standard; and Premium Plus = 125% of Premium.

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- There are also four tiers of MySQL Enterprise support subscriptions available, with higher tiers providing additional functionality and support. Basic support is priced at USD 599, Silver Support at USD 1,999, Gold Support at USD 2,999, and Platinum support at USD 4,999. Sun estimates that approximately 1 in every 1,000 users pays for MySQL support. In Oracle's FY09, approximately 96% of Oracle database customers paid for support (which includes product updates and upgrades).
- As further described in Section 8, middleware OEM customers can also choose the level of support they receive, based on their resources and requirements. A Standard Plus Service Plan for a small project is priced at USD 90,000 per year; the Standard Plus Service Plan for a large project is priced at USD 108,000 per year; the Premium Plus Service Plan for a small project is priced at USD 132,000 per year; the Premium Plus Service Plan for a large project is priced at USD 150,000 per year; the Standard Service Pack is priced at USD 15,000; and the Premium Service Pack is priced at USD 21,000. As noted below in Section 8, all of the above-listed service plans are sold by project. The price points listed apply to individual projects.

B. Hardware

210. *Sun's Hardware Development.* Sun's hardware development portfolio includes SPARC CPUs, servers, desktop systems, storage (both disk and archive) and networking.
211. Sun SPARC CPU development efforts focus on delivering open, chip multi-threading ("CMT") processor designs. Sun is the industry leader in multi-core/multi-thread technology. Such development efforts include:
 - UltraSPARC T2: Industry's first "system on a chip" and fastest commodity SPARC RISC processor with 8-core, 64-thread. Powered by less than 95 watts (nominal) with less than 2 watts per thread, this next generation UltraSPARC T2 processor boasts the most functionality and lowest wattage per core and thread of any processor in its class.
 - UltraSPARC T1: SPARC/RISC processor with 8-core, 32-thread.
212. Sun server development efforts include:
 - Sun SPARC Enterprise Systems: Mission-critical midrange and highend servers with mainframe-class RAS features. Designed for highly scalable consolidation systems optimised for 7x24 mission-critical computing. The Mseries is a joint development effort with Fujitsu.

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- Sun Volume SPARC Systems: low-end to midrange servers the highest throughput and breakthrough eco-efficiency with Sun's proven chip multithreading (CMT) architecture.
 - Sun x64 Servers: AMD- or Intel-based rack servers, also known as x86/x64-based systems, running the Solaris OS, Windows, Linux and VMware.
 - Sun Blade Systems: Blade servers with a choice of processor architectures – Sun SPARC, Intel Xeon or AMD Opteron – and operating systems – Linux, Windows and Sun Solaris OS.
 - Sun Netra Carrier-Grade Servers: Ruggedised, NEBS-certified servers and software designed for the most demanding applications under any conditions. Provides choice of server architectures (ATCA blades or rackmount), CPUs (Sun UltraSPARC or x64 from AMD Opteron™ and Intel) and operating systems (the Solaris™ OS, Linux or Windows)
213. Sun desktop systems development efforts include:
- Sun Workstations: Intel-based x64 workstations running Linux, Windows or Sun Solaris.
 - Sun Ray Clients: Thin client desktop device.
214. Sun product development efforts include:
- Tape archive systems and disk storage and host bus adapters.
 - Tape storage: Sun StorageTek tape libraries, tape virtualisation, tape drives, tape media and tape device software.
 - Disk storage including NAS storage appliances, JBODs and Storage Servers.
215. Sun networking products are a complete line of networking solutions for ethernet, infiniband and fibre channel networks.
216. ***Sun's hardware sales organisation.*** Systems Line of Business is the core direct sales team for Sun's server, storage, desktop and networking technologies and solutions. Four Global Product Sales groups provide deep specialisation in Enterprise Systems, Commercial Systems, High-performance Computing and Systems Engineering. These teams complement four regional sales teams in North America, Europe, Asia-Pacific and emerging markets, plus a Systems – Global Accounts and Industries team.

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217. **Pricing of Sun hardware.** Sun has one internal manufacturing facility located in the Hillsboro, Oregon, USA, that is owned by Sun. Sun assembles and tests high-end enterprise SPARC servers at this location and conducts custom integration for certain large Telco customers. Sun has external manufacturing facilities run by partners around the globe.
218. Sun considers a variety of factors when formulating a proposed hardware product list price, including, but not limited to: (1) cost of development, cost of materials, manufacturing overhead costs, inventory, *etc.*; (2) value drivers such as the Sun IP within the hardware product; (3) industry data regarding competitive products; (4) cost of warranty; (5) competitive market conditions; and (6) general supply and demand. The typical hardware product pricing will generally involve the following key decisions:
- The HQ list price (“HLP”) in USD, which serves as a corporate-wide base reference price as well as the US list price. This US list pricing is determined by the Product Business Unit and approved by the Executive Vice President of the division.
 - Standard discount categories are used to provide the same discount to a group of products in a given country for a given type of user. All products are assigned a discount category. The standard discount is off of list price. It is unique by country and determined locally to address local market expectations. Sun’s guidelines on standard hardware product discount categories are:

Table 15: Sun discount categories

Product Categories	Discount Category	Market Expectations	End User Guidelines
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED

- The local country list price (“LCP”) is a result of the US list price adjusted for uplift and hedged FX rate (*i.e.*, local list price = US list price * uplift * FX rate). Product prices are uplifted in response to local market conditions, including the cost of doing business (freight, tariffs, warranty, *etc.*); competition; and specific local practices. EU countries have the same uplift values.

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219. ***Sun hardware maintenance & support.*** Sun offers different support plans for different customers. In addition to the support plans for end-user customers, Sun has specific plans for OEM customers and developers and can create customised support plans for end-user customers as well. There are two system service plans available for Sun server platforms. The support cost varies by product and by service level. Each plan has four service level offerings: Platinum, Gold, Silver and Bronze. Standard offerings for end-user customers are listed below:

- Sun System Service Plan for the Solaris OS: provides integrated hardware and Solaris OS (or OpenSolaris OS) support service coverage to help keep systems running smoothly. This single-price, complete-system approach is ideal for companies running Solaris on Sun hardware. *See Annex 15.*
- Sun Hardware Service Plan: provides support service coverage for Sun hardware only. This plan covers above and beyond the normal product warranty. *See Annex 16.*
- SunSpectrum Enterprise Service Plan: provides a comprehensive portfolio of services that can be custom assembled to meet customer needs. This is a site-based program that combines a standard, base level of support with optional service modules to create a flexible, semi-custom contract. It is built on the foundation of 24x7x365 hardware and Solaris OS support, which includes online and telephone support, on-site support (with customer-defined response levels), quarterly tune-ups and replacement parts. The SunSpectrum Enterprise Service Plan provides a single contract with a single price.

7.8 *a comparison of price levels in each Member State and EFTA State by each party to the concentration and a similar comparison of price levels between the Community, the EFTA States and other areas where these products are produced (e.g., Russia, the United States of America, Japan, China, or other relevant areas); and*

220. In the software industry generally it is neither possible nor meaningful to make such comparisons. Pricing is deal and customer-specific and substantial discounts of up to 80% or more are applied to list prices depending on the competitive situation. Neither Oracle nor Sun track pricing information by geography. While Sun's internal US list prices are generally marked-up for sales in other geographies to reflect the higher cost of sales, this does not imply that net price levels are any different given exchange rate fluctuations and local expectations about discounting.

7.9 *the nature and extent of vertical integration of each of the parties to the concentration compared with their largest competitors.*

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221. In terms of downstream integration, software companies typically sell and distribute their products both through third-party partners and through their own salesforce. Oracle and Sun are no exception to this rule and the sales organisation of the Parties is described further in Section 8 below. In terms of integration upstream, there are very few inputs, in the traditional sense of the term, that go into software offerings. To the extent that Java can be considered an input for middleware or application software that Oracle produces, Oracle is currently no more integrated in this regard than any other licensee of Java. Post-Transaction, "ownership" of Java by Oracle will not result in an increased degree of vertical integration or give rise to any competitive concerns for the reasons explained in Section 7. Thus, overall, Oracle's and Sun's vertical integration is comparable to that of other major software vendors such as IBM, Microsoft, SAP and Red Hat.

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SECTION 8

General conditions in affected markets

222. In relation to the non-horizontally affected markets (application development environments, operating systems and servers), the aspects of Section 8 that are relevant to the competitive analysis have been discussed in Sections 6 and 7. Except where explicitly stated otherwise, the information below is provided for database and middleware software.

8.1 *Identify the five largest independent suppliers to the parties to the concentration and their individual shares of purchases from each of these suppliers (of raw materials or goods used for purposes of producing the relevant products). Provide the name, address, telephone number, fax number and e-mail address of the head of the legal department (or other person exercising similar functions; and in cases where there is no such person, then the chief executive) for each of these suppliers.*

223. Not applicable.

Structure of supply in affected markets

8.2 *Explain the distribution channels and service networks that exist in the affected markets. In so doing, take account of the following where appropriate:*

(a) *the distribution systems prevailing in the market and their importance. To what extent is distribution performed by third parties and/or undertakings belonging to the same group as the parties identified in Section 4?*

224. **Introduction.** While database software vendors have different approaches to distribution, the vast majority of database products are sold through one of three channels: directly by the database vendor; indirectly through third party partners or resellers; or embedded as part of other software products.

225. Oracle has close to 280,000 database customers worldwide. Sun, through its recent acquisition of MySQL, as of early 2009 had fewer than 8,000 paying database software customers worldwide. Prior to its acquisition of MySQL in 2008, Sun did not have a presence in the database business. The parties do not at present have precise information about the precise number of EEA customers; analysts reporting in the database software market estimate the EEA customer base to represent around 37 % (by revenue) of worldwide customers, however.¹⁴²

¹⁴² IDC, 2008, *Worldwide Database Relational Management Systems 2007 Vendor Shares*, June 2008.

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226. As with database, middleware vendors have different approaches to distribution, but the vast majority of middleware products are sold directly by the middleware vendor or indirectly through third-party partners or resellers. Like other layers of the stack, middleware components might be bid independently, negotiated bilaterally, sold through VARs, sold as a suite of products or included as a component of a prime's bid on a larger project or installation. Further, it is often the case that customers will run a variety of different middleware offerings from a variety of vendors.
227. The most noteworthy exception to the typical manner in which middleware is procured is Microsoft's middleware products: many, if not most, of these technologies are both bundled and technically integrated with Microsoft's Windows OS.
228. Oracle has close to 55,000 middleware customers worldwide (when Fusion Middleware is considered to include business intelligence tools, content management, integration, and other components). Sun has close to 2,800 middleware customers worldwide with active enterprise licenses and support contracts. The parties do not presently have precise information about the number of EEA customers; however, analysts reporting in the middleware market estimate the EEA customer base to represent around 34% (by revenue) of worldwide customers.¹⁴³
229. *Oracle's distribution channels for database and middleware.* Oracle, like the majority of database and middleware software suppliers generally, has both a direct-sales distribution channel and an indirect-sales distribution channel:
230. Oracle's worldwide direct-sales channel includes Oracle's telesales (sales through the phone and/or the web - called Oracle Direct) and field sales forces. Oracle Direct has dedicated database and middleware software sales teams to serve SMEs and departments within large companies. This distribution channel accounts for 32% of Oracle's overall database revenue and 23% of Oracle's overall middleware revenues. The direct field sales force also has dedicated database and middleware sales teams and is organised geographically into groups: EMEA, Asia-Pacific ("APAC") and Latin America ("LAD").
231. Oracle's indirect-sales channel consists of a worldwide network of different types of partners (Oracle's Partner Network). Oracle's partners are not exclusive to Oracle and they self-classify themselves under a partner category without Oracle ever reviewing the partners' self-classification or certifying

¹⁴³ IDC, *Worldwide Application Deployment Software 2007-2011 Forecast Update and 2006 Vendor Shares: Emerging Markets Drive Strong Growth*, June 2007.

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their activities. Partner categories include resellers, VARs, VADs, ISVs, SIs, and hardware and infrastructure vendors. Partners' activities range from selling Oracle products exclusively to offering Oracle products with their own products, as well as customising Oracle products for different end users. For example, SIs provide guidance to end users on the software, hardware and implementation service options available to them in order to create the best solution for the end users' needs. In this role, the SIs may propose a solution that includes Oracle's software, but, acting in this capacity, they are not part of Oracle's distribution and sales network. Among SIs, Oracle has close partnerships with CapGemini, Ernst and Young, Bearing Point, Deloitte Consulting, and major Indian SIs such as Tata Consulting, WIPRO and Infosys, as well as a number of tier-two system integrators. Dell Computer and Fujitsu Siemens Corporation are Oracle's two largest hardware partners. Oracle also has a large number of VARs who implement solutions built around Oracle's database software.

232. The type of agreement that partners have with Oracle determines the range of the partners' selling options. There are three main types of partner distribution agreements: (i) Full Use Program Distribution Agreement ("FUPDA"); (ii) Application-specific Full Use Program Distribution Agreement ("AS FUPDA"); and (iii) Embedded Software License Distribution Agreement ("ESLDA"). Under an FUPDA, an Oracle partner supplies Oracle products and is allowed to offer standard discounts on Oracle's price lists. After the product has been sold to the end customer, the end customer becomes the licensee and the partner reports to Oracle the identity of the end user so that Oracle can take over the maintenance contract. The same partner may also provide integration service and/or build applications on top of Oracle products. Under an AS FUPDA, an Oracle partner, *e.g.*, an ISV, supplies an Oracle product (*i.e.*, resells a licence) to an end user in order to support and/or supplement the partner's own product. Under an AS FUPDA, the end customer may use the Oracle product only in conjunction with the ISV's product. Under an ESLDA, an Oracle partner embeds an Oracle product into its own product, which is then supplied to the end customer. Thus, the end customer may never know that it is using an Oracle product and may never have any kind of relationship with Oracle. In any event, there are entities, *e.g.*, some ISVs, that have all three types of agreements in place with Oracle.
233. As of 1 June 2009, the overall number of Oracle partners worldwide was more than 21,500, of which more than 12,250 were active in EMEA. There are more than 3,000 worldwide resellers and more than 1,350 resellers in EMEA. Oracle does not track categories of products that these vendors resell (applications vs. middleware vs. database).

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234. Oracle's "strategic," or key, accounts are generally served through direct sales, whereas "commercial," or smaller, accounts (involving both smaller and larger companies) are generally targeted by Oracle partners and Oracle Direct. There is no bright dividing line between large and small accounts, however, and Oracle's partners are not prevented from selling to large accounts, nor is Oracle prevented from selling directly to smaller accounts. In most areas of the world, Oracle partners buy from Oracle distributors (*i.e.*, distributors which are part of Oracle's direct sales channel) and they are allowed to sell to all customers within the standard discount limits.
235. For customers that Oracle services directly, Oracle typically assigns a specific account manager to the accounts. These are identified by Oracle as "named accounts." The selection of "named accounts" is based primarily on the commercial potential of the account and not on the size of the customer. For example, one large automobile manufacturer might present excellent sales opportunities for Oracle and hence be designated a "named account," whereas another equally large automobile manufacturer might not present any significant opportunities and thus not receive this designation. As a general rule, Oracle dedicates more sales resources to accounts that have the potential to generate significant revenue.
236. Customers who are not assigned to a specific Oracle account manager are serviced by regional account managers who work within a particular territory. Within EMEA, the Oracle country managers have authority to designate named accounts. An account manager is then generally assigned to customers. The role of the account manager for named accounts is to get to know the customer and its industry and to identify Oracle sales opportunities. Once an opportunity has been identified, the account manager will often bring in one or more Oracle specialists with deeper knowledge of a particular type of application or of the industry or integration requirements of the customer.
237. The structure and organisation of the Oracle direct- and indirect-sales channels correspond to the fact that Oracle offers broad solutions, including database, middleware and applications. For example, after the database software sales personnel make a sale to a customer, then the middleware and applications sales personnel typically will follow – or the database team might follow after a customer chooses an application, *etc.*
238. ***Sun distribution channels for database and middleware.*** Sun middleware and MySQL database is commonly sold directly to end-users through two-tier distribution. Two-tier distribution is a common industry term for the manufacturer selling to distributors, the distributors then selling to resellers and system integrators, and the resellers and system integrators selling to the end-user customer. Approximately 32% of Sun's middleware sales are

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through two-tier distribution. Sun's distributors, resellers and system integrators are all independent companies.

Sun also uses a single-tier channel (Sun sells to reseller/system integrator, reseller system integrator sells to end-user); direct sales (where Sun sells directly to the end user (includes enterprise sales and telesales)); Internet sales (where end user purchases products directly from the Sun web site); and an OEM channel (Sun sells to a hardware or software manufacturer that then embeds or relabels the product/code using their branding).

Sun distributes the MySQL database and its GlassFish middleware through direct sales channels, authorized resellers and OEMs. Sun does not have specific products or distribution patterns that are targeted towards specific customer segments. The MySQL Cluster database product and the GlassFish Communications product is more suited to telecommunications customers but there is no difference in the pattern of supply for this product. It is available for sale through the direct sales force, resellers and OEMs. There are no other products that are targeted to specific customer segments within the database product group.

239. Sun's partner relationships include OEMs, CDPs (distributors), resellers, SIs and ISVs. Each OEM relationship is unique. Agreements include benefits and terms that are specific to the OEM. CDP relationships are generally similar throughout the world, but agreements typically also include unique terms and conditions. A CDP agreement pertains only to one Sun GEM (geographic region) so a CDP that wishes to do business with Sun in multiple GEMs must sign an agreement for each. Sun offers the Sun Partner Advantage Program for ISVs, SIs and resellers. The program has three membership levels and each level has a set of requirements and benefits associated with it. Generally, as the partner's investment in Sun increases, they receive higher-level benefits. Sun also has a number of Global System Integrator ("GSI") partners. These partnerships include benefits and terms that are specific to each partner.
240. *Other vendors' distribution systems.* Oracle and Sun are not familiar in detail with the distribution methods of other vendors. It is believed, however, that the other vendors generally also work on the basis of a combination of direct sales and indirect sales through partners, including SIs.
- (b) *the service networks (for example, maintenance and repair) prevailing and their importance in these markets. To what extent are such services performed by third parties and/or undertakings belonging to the same group as the parties identified in Section 4?*

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241. **Generally.** After-sales support (*e.g.*, de-bugging and upgrades) is provided principally by the software vendors (and to a limited extent by their partner distributors) and independent service providers.
242. **Oracle support services for database and middleware.** Typically, customers pay an annual maintenance fee to the vendor, which, in Oracle's case, importantly, also includes *perpetual software upgrade rights* whenever one is available and the customer wishes to upgrade (customers are free to upgrade whenever they want, and can even "skip" an upgrade). Oracle's support price amounts to 22% of the net license price paid by customers (*i.e.*, after discounts have been applied) for the duration of the support contract. Even if the customer does not sign up for full Oracle support, it can still contact Oracle and receive technical support as needed. In this case, however, the customer does not receive product upgrades and enhancements, nor is the customer entitled to perpetual upgrades free of charge. ISVs, and in general partners that build and sell their own products on top of Oracle products, are often the first line of support, in that they initially determine whether the customer's issue relates to their own product or to Oracle's product and refer customers to Oracle only if the issue is Oracle-related. Moreover, Oracle partners can also sell additional support services on top of Oracle's, *e.g.*, by re-training the customer's personnel.
243. **Sun support services for database and middleware.** As noted in Section 7.7, paragraph 149, Sun has a general software support program and specific support programs for MySQL and middleware OEM customers. For information on how these offerings are priced, *see* Section 7.7.
244. Under Sun's general software support program, Sun offers different support programs depending on the level of support that a customer requires. Middleware enterprise customers can choose the level of support they receive, based on their resources and requirements. The different levels of support are as follows:
- Basic Support: access to Sun's knowledgebase, software releases and updates, and alerts and notifications.
 - Standard Support: online and technical telephone support with a 4-hour response time (available 12 hours/day, 5 days/week), access to the knowledgebase, software releases and updates, and alerts and notifications.
 - Premium Support: online and technical telephone support with immediate response (available 24 hours/day, 7 days/week), multi-vendor interoperability support, access to the knowledgebase, software releases and updates, and alerts and notifications.

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- Premium Plus Support: includes online and technical telephone support with immediate response (available 24 hours/day, 7 days/week), customer-focused support team, customer advocate, multi-vendor interoperability support, access to the knowledgebase, software releases and updates, and alerts and notifications.
245. MySQL Enterprise support subscriptions are available in four tiers. Each tier provides additional functionality and support. Customers can choose between the following levels:
- Basic Support: provides updates, patches and email support for 2 incidents.
 - Silver Support: provides support during business hours.
 - Gold Support: provides support 24 hours a day, 7 days a week.
 - Platinum Support: provides support 24 hours a day, 7 days a week. It also provides account management and consultative support.

It should be noted with regards to MySQL that there are several companies providing technical support for MySQL in competition with Sun. these include: Novell*, Red Hat*, HP*, Monty Program, Percona, Linagora*, Mayflower, Optaros, Hitachi, Infosys, Wipro and TCS.¹⁴⁴ Sun does not have access to data on the revenues these companies generate through providing technical support to MySQL.

246. Middleware OEM customers can choose the level of support they receive, based on their resources and requirements. The different levels of support are as follows:
- Standard Plus Service Plan (small project): provides support for a small 1-year project. Customers are provided with an Assigned Technical Account Manager ("ATAM") and unlimited incidents at the Standard level of service.
 - Standard Plus Service Plan (large project): provides support for a large 1-year project. Customers are provided with an ATAM and unlimited incidents at the Standard Level of service.

¹⁴⁴ * indicates companies that are MySQL partners, in the sense that they resell MySQL Enterprise but retain the right to support MySQL Community Edition without paying Sun. The contact details of the largest companies providing support for MySQL are included as **Annex 28**.

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- Premium Plus Service Plan (small project): provides support for a small 1-year project. Customers are provided with an ATAM and unlimited incidents at the Premium level of service.
- Premium Plus Service Plan (large project): provides support for a large 1-year project. Customers are provided with an ATAM and unlimited incidents at the Premium level of service.
- Standard Service Pack: provides support for 15 incidents at the Standard level of service that must be used within a year. The Standard Service Pack normally covers OEM in-house systems only.
- Premium Service Pack: provides support for 15 incidents at the Premium level of service that must be used within a year. The Premium Service Pack normally covers OEM in-house systems only.

247. All of the above-listed service plans are sold by project. The price points listed apply to individual projects. Sun defines a project as a single product development or support activity within an OEM organisation that develops or supports at most one product line or one component technology. A product line is a family of products of similar functionality sold into similar markets, differing only in capacity or form factor. The categorisation of “large” and “small” projects is only an internal pricing factor; it does not affect support features or delivery. A large OEM project has multiple development or support locations, or more than about 20 development or support engineers.

8.3 *Provide an estimate of the total Community-wide and EFTA-wide capacity for the last three years. Over this period what proportion of this capacity is accounted for by each of the parties to the concentration, and what have been their respective rates of capacity utilisation? If applicable, identify the location and capacity of the manufacturing facilities of each of the parties to the concentration in affected markets.*

248. Capacity is not a relevant constraint in database or middleware or indeed the software industry in general. All vendors are able to produce an unlimited number of copies of their software to serve even a rapid increase in demand. Vendors and their distribution partners normally have sufficient capacity to expand their consulting activities substantially if this is necessary to serve additional customer demand.

8.4 *Specify whether any of the parties to the concentration, or any of the competitors, have “pipeline products”, products likely to be brought to market in the near term,*

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or plans to expand (or contract) production or sales capacity. If so, provide an estimate of the projected sales and market shares of the parties to the concentration over the next three to five years.

249. **Oracle Database.** Oracle's main development plans in database software relate to the release of Oracle Database 11g Release 2, targeted for late August 2009, which will feature enhanced data compression and easier installation of database server clusters as the primary upgrades.
250. **Oracle Fusion Applications.** Fusion is Oracle's ongoing project to develop the next generation of enterprise technologies, applications and services. Oracle's suite of next-generation enterprise applications will be able to run with Oracle Database software 11g and will also give customers access to Java, composite applications built on SOA, master data consolidation, Grid Computing, Enterprise 2.0 functionality and other technologies. Oracle expects that Project Fusion will be a single, unified, hot-pluggable and secure platform for building and deploying modern applications while offering customers the lowest total cost of ownership of all enterprise software providers.
251. **Oracle Fusion Middleware.** The next release of Oracle Fusion Middleware – Fusion Middleware 11gR1 – has been scheduled for delivery on 1 July 2009. Oracle expects that Fusion Middleware will be a single, unified, hot-pluggable and secure platform for building and deploying modern applications while offering customers the lowest total cost of ownership of all enterprise software providers. Fusion Middleware is designed to achieve deeper unification among components within Oracle's middleware product family and enhancements to the common infrastructure shared by those products, including a number of new technical capabilities in the areas of Development Tools, Application Grid, Service-oriented Architecture and Business Process Management, Enterprise Portals and Identity Management.
252. **Sun database.** "Project Peter" is Sun's proposed initiative to assist customers in interoperating and (to a much lesser extent) migrating from proprietary or other open source databases to MySQL or developing a co-existence strategy using a combination of professional services, training and recommended third party tools that automate database migrations and co-existence (with interoperability and co-existence being the key imperatives). This plan is driven by Sun's recognition that many of its customers are "hybrid" customers, using proprietary databases for some applications and MySQL for others. In particular, customers tend to use more industrial strength databases (e.g., Oracle, DB2) for ERP and high-availability applications and MySQL for other applications.
253. **Sun middleware.** Sun's middleware development plans for the next 18 months include adopting and supporting new standards, improving usability

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and integration between products, improving performance and scalability, and responding to customer and market demands. Key releases are expected to be:

- GlassFish Enterprise Server v3 in [REDACTED] and v3.1 in [REDACTED]
- GlassFish Communications Server 2.0 in [REDACTED]
- GlassFish Web Space Server 10.1 in [REDACTED]
- GlassFish ESB v3 in [REDACTED]
- Identity Manager 9.0 in [REDACTED]
- OpenSSO Enterprise 8.1 in [REDACTED]
- Role Manager 5.0 in [REDACTED]
- DSEE 7.0 in [REDACTED]
- OpenDS Standard Edition in [REDACTED]

8.5 *If you consider any other supply-side considerations to be relevant, they should be specified.*

254. **Database supply-side considerations.** According to IDC data, there are at least 10 vendors with revenues over USD 50 million in this market.¹⁴⁵ The Transaction will not significantly change this market structure at all, as Sun/MySQL is a very small participant.

255. There are a multitude of suppliers of database software, ranging from multinational software providers to niche players specialising in the development of solution-specific database software. The Transaction will not significantly increase the degree of concentration existing in the database software business or its functional segments today. Large private-source competitors such as IBM, Microsoft, Sybase, Teradata and SAS, as well as open-source providers such as PostgreSQL, Ingres and MySQL forks (e.g., MariaDB), will continue to vie for business with the combined Oracle/Sun entity.

256. Of particular note, of course, are IBM and Microsoft. According to IDC, when measured by units shipped, Microsoft's share of database is greater

¹⁴⁵ IDC, *Worldwide Relational Database Management Systems 2007 Vendor Shares*, June 2008.

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than Oracle and IBM's *combined*.¹⁴⁶ Microsoft's success in database comes from – among other things – leveraging its dominant position in server operating systems (Windows 2000 server and successors) and e-mail servers (Exchange). IBM, having acquired Informix Software, and through its strength in mainframe database software – as well as its leading position in middleware and services globally – is a major supply-side constraint with its DB2 database.

257. As stated elsewhere in this Form CO, Oracle and MySQL are not supply-side competitors. Oracle and MySQL provide very different technologies to a very different set of users, fulfilling a different set of requirements. Insofar as there is a small zone of overlap between the two vendors, that overlap occurs where Microsoft SQL Server is most dominant.
258. **Middleware supply-side considerations.** As detailed above, including in Sections 6 and 7, available market data shows that the supply side is highly fragmented. According to IDC data, there are at least 25 vendors with revenues over USD 50 million in this market. The Transaction will not significantly change this market structure.
259. The Transaction will not significantly increase the degree of concentration existing in the middleware business or its functional segments today. Large competitors such as IBM, Microsoft, Tibco, SAP, Red Hat and other open-source providers will continue to vie for business with the combined Oracle/Sun entity.

Structure of demand in affected markets

- 8.6 *Identify the five largest independent customers of the parties in each affected market and their individual share of total sales for such products accounted for by each of those customers. Provide the name, address, telephone number, fax number and e-mail address of the head of the legal department (or other person exercising similar functions; and in cases where there is no such person, then the chief executive) for each of these customers.*
260. The customer information for Oracle is presented in **Annex 10**. Oracle has provided customer detail in relation to databases and middleware, as well as a list of InnoDB and Berkeley DB customers.¹⁴⁷ A list of common Oracle database/MySQL customers is included as **Annex 12**.
261. The equivalent customer information for Sun is presented in **Annex 11**.

¹⁴⁶ IDC, *Server Workloads Forecasts and Analysis Study, 2005-2010*, July 2007.

¹⁴⁷ InnoDB only has the 3 customers listed in **Annex 10**.

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8.7 *Explain the structure of demand in terms of:*

(a) *the phases of the markets in terms of, for example, take-off, expansion, maturity and decline, and a forecast of the growth rate of demand;*

262. **Database.** Overall, the worldwide database business grew by 28.4% from 2005 to 2007, according to IDC.¹⁴⁸ In overall terms, revenues from database are expected to continue to grow fairly significantly over the coming years. While the overall growth rate for the database business is expected to remain high, not all segments are growing at the same rate and at the same time. Segments which have enjoyed a strong market adoption rate for a number of years, such as online transaction processing ("OLTP"), have reached a relative state of maturity, while other segments, such as data warehouse appliances, are more properly characterised as emerging and are expected to see stronger growth.

263. In general, the driver of total revenue growth in database software – as in all enterprise software – is the growth of new transactions, new requirements and technologies. The explosion of unstructured data (video, documents), has created new demand to manage and store that data. Regulatory compliance (storage and retrieval of historical documents) has created new demand for database technologies. New forms of commerce – such as on-line commerce – have substantially increased the demand for transactional database technology.

264. As regards the attribution of database software market growth to existing users as opposed to new users, it can be observed that virtually all buyers of new database software licences will already be existing users of some form of database software. This picture is likely to vary quite significantly between different database software segments, however. While new sales of mature database software products such as OLTP database software are highly likely to be made to existing users, this may be less true of younger and faster-growing database software segments such as data warehousing appliances, where there may be a greater proportion of net new customers, *i.e.*, customers buying licences for this type of software for the first time.

265. **Middleware.** As detailed in Sections 6 and 7 above, middleware encompasses a broad variety of infrastructure software used to create, deploy and manage web-based and traditional applications built on both legacy and modern architectures, including SOAs and event-driven architectures ("EDAs"). The worldwide middleware business grew nearly 17% in 2007 to

¹⁴⁸ IDC, *Worldwide Database Relational Management Systems 2007 Vendor Shares*, June 2008.

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USD 13.5 billion, according to IDC,¹⁴⁹ and in 2008 it grew 10.5% to USD 14.7 billion.¹⁵⁰ According to IDC, the pace of growth in 2007 was slightly higher than in the previous year – the integration and process automation middleware business was worth nearly USD 8 billion in 2007 and grew 22% and application server middleware was worth USD 5.6 billion in 2007 and grew 9%.¹⁵¹ In overall terms, moderate growth in revenues is expected over the coming years in middleware. IDC estimates growth at 4.2% CAGR from 2009 to 2013, to USD 18 billion. This forecast cuts last year's forecast growth by more than 50% in light of the economic crisis.¹⁵² While IDC envisages that revenue growth should pick up in 2010, IDC estimates that middleware will experience a soft recovery because of enterprise expense controls that will change investment decisions. IDC does not expect any middleware market to experience revenue declines in 2009, but license revenue will decline in many middleware segments.¹⁵³

266. While the overall growth rate for the middleware business is expected to be moderate, not all segments are growing at the same rate. Segments which have enjoyed a strong market adoption rate for a number of years, such as application servers, have reached a relative state of maturity, while other segments focusing on new architectures or functionalities are more properly characterised as emerging and are growing at an annual rate of over 100%.
267. More specifically, in relation to the candidate-affected middleware markets in the present case, estimated growth rates are as follows.
 - **Application servers:** IDC reported that the application server middleware market was worth USD 5.6 billion in 2007 and grew 9%.¹⁵⁴ IDC forecasts the market will reach USD 7.2 billion in 2012 (5% CAGR).¹⁵⁵
 - **Portals:** IDC reported that worldwide Enterprise Portal Software ("EPS") revenue for 2007 was USD 1.2 billion, representing 18.3%

¹⁴⁹ IDC, *Worldwide Application Deployment Software 2007 Vendor Shares: Growth Continues*, August 2008.

¹⁵⁰ IDC, *Worldwide Application Deployment Software 2009-2013 Forecast*, May 2009.

¹⁵¹ IDC, *Worldwide Application Deployment Software 2007 Vendor Shares: Growth Continues*, August 2008.

¹⁵² IDC, *Worldwide Application Deployment Software 2009-2013 Forecast*, May 2009.

¹⁵³ IDC, *Worldwide Application Deployment Software 2009-2013 Forecast*, May 2009.

¹⁵⁴ IDC, *Worldwide Application Deployment Software 2007 Vendor Shares: Growth Continues*, August 2008.

¹⁵⁵ IDC, *Worldwide Application Deployment Software 2008-2012 Forecast*, May 2008.

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annual growth over 2006. The market is projected to grow to USD 2 billion by 2012. This equals a growth rate of 10.76 % per year.¹⁵⁶

- **ESB:** IDC reported that the ESB and connectivity market revenue for 2007 was USD 1.4 billion, a growth rate of 41.3% from 2006.¹⁵⁷
- **BPMS:** IDC reported that the process automation middleware market, which includes BPMS, was worth nearly USD 2.7 billion in 2007 and grew by 29.4%.¹⁵⁸

(b) *the importance of customer preferences, for example in terms of brand loyalty, the provision of pre- and after-sales services, the provision of a full range of products, or network effects;*

268. Customers select database and middleware software products according to a variety of factors. As portrayed in the figure below, published by IDC in 2005, the ten factors that could weigh in customers' decisions are, in descending order of significance: (i) reliability; (ii) meeting functional requirements; (iii) usability; (iv) availability; (v) performance; (vi) security; (vii) modifiability; (viii) scalability; (ix) interoperability; and (x) portability. More than 80% of the users that participated in the IDC survey responded that the first five attributes in the list were of the highest importance.

Figure 6: Importance of software architecture quality attributes

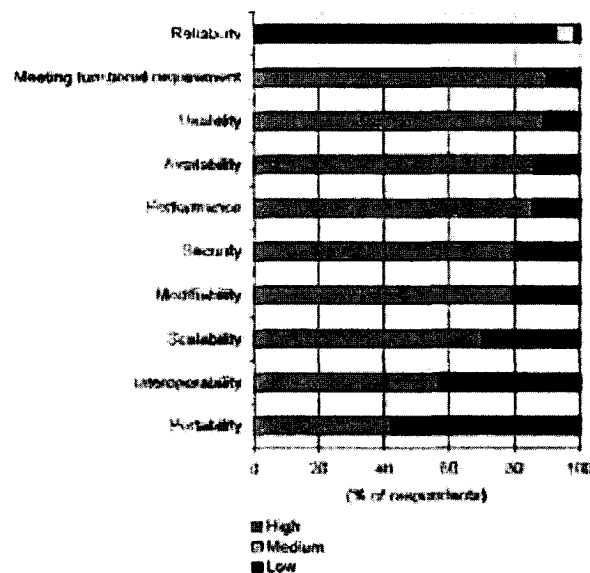
¹⁵⁶ IDC, *Worldwide Enterprise Portal Software 2008-2012 Forecast Update and 2007 Vendor Shares: A New Landscape*, July 2008.

¹⁵⁷ IDC, *Worldwide Enterprise Service Bus and Connectivity Middleware 2007 Vendor Shares*, August 2008.

¹⁵⁸ IDC, *Worldwide Process Automation Middleware 2007 Vendor Shares*, September 2008.

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Importance of Software Architecture Quality Attributes



Source: IDC's Software Developer Collaborative, 2005.

269. More specifically, in the relatively mature database software segments (such as online transaction processing) or middleware segments (such as application servers), the purchasing decision may be driven more by the application which the database or middleware software, as the case may be, is intended to support, rather than the functionality or performance of the database or middleware software (which has become a mature product). Other factors that customers take into consideration are the total cost of ownership and the possibility to consolidate applications and database software under fewer vendors.
270. Currently, many vendors meet the above-mentioned criteria, although, inevitably, certain vendors will be better in some segments/functionalities and worse in others. Large vendors whose products may present certain weaknesses move rapidly to improve them and cover any distance from others.
271. Although some customers may be more committed to one or the other vendor, brand loyalty is in that sense not as important to the customer as the vendor's ability to provide the functionality required for a particular project at the most competitive price. That said, where a vendor such as Sun or Oracle has developed a track record of high performance over time, this will tend to enhance that vendor's recognition and reputation.
272. In many cases, customers often solicit one or more offers from competing vendors and integrators that can offer "mix-and-match" solutions. Once a

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customer has selected a given vendor for one or more database or middleware software products, this does not mean that the customer is wedded to that supplier for other database or middleware software products used in different production deployments. Specifically in relation to databases, nearly all customers use databases from two or more suppliers. For example, as the Parties have stated, many customers use both Oracle, MySQL and – to the extent they use either the Microsoft Exchange e-mail system or the Microsoft SharePoint portal, those customers are most likely using Microsoft SQL server, as well. It would also not be uncommon to find customers running IBM, Oracle and MySQL databases in the same enterprise. Oracle cannot estimate how many customers use both MySQL and Oracle databases. Anecdotally there are customers who use both Oracle and MySQL, but those customers are using Oracle and MySQL for very different use cases, or they are using MySQL for small development projects and then moving to Oracle before deploying those projects in production scenarios. The reason these customers are not deploying both Oracle and MySQL in similar use-cases is addressed in Section 7.3 of the Form CO.

273. A typical scenario under which a customer may migrate for cost purposes is when they have a specific development project and their prior database or middleware software support contract is running out: if the prior vendor does not offer a good deal for further support and the customer already has database or middleware software from another vendor that also provides database or middleware software and support under better terms, they may consider seriously swapping. Even in this scenario, however, if the customer considers Oracle specifically, they do not necessarily have to swap their database or middleware software due to Oracle's "hot-pluggability": they can continue using their old database or middleware software because most of Oracle's products are designed to be able to run with all other popular brands of database and middleware software, all major clients/browsers and all major operating systems. Depending on the advancement of the standardisation process in each different niche, it is possible to mix and match most of the different vendors' database and middleware elements with third-party database and middleware elements, *e.g.*, Oracle Database works with Informatica data integration software and Quest database development tools, and Oracle certifies its application servers on the messaging infrastructure of Tibco and IBM MO Series.
274. Regarding after-sales service, it may be important to customers to be able to support the product in-house (a relevant consideration in, *e.g.*, open-source implementations) or to have the software supported by the systems integrator involved in the design of the implementation. As noted above, depending on customers' choice, support may be provided by the vendor of the database or middleware software product, by systems integrators or by specialised support service providers.

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275. *Full range of products.* The range of product offerings from a particular vendor is not a determinative factor in customers' decisions and will not alter competition in the database or middleware software markets. Customers regularly use one vendor's products for certain deployments and tasks and another vendor's offerings for other tasks.
276. Although some customers may value the ability of a vendor to be able to offer a wide range of software solutions, functionality and the cost will typically be more significant factors in purchasing decisions. It is extremely rare in this day and age for any customer to create a complete IT system from scratch – previous technology investments and internal expertise will usually heavily influence the decision process. The typical enterprise customer will have a combination of legacy, custom and pre-packaged software most likely running in a heterogeneous hardware environment.
277. Customers do from time to time make new investments for particular applications or deployments in their business, however, which may result in an incremental implementation or a replacement of legacy systems. In those situations, the customer typically focuses on end-functionality (*i.e.*, does an application satisfy the business need?), performance, flexibility, cost of ownership and so on. Vendors will sell their solutions by appealing to the particular unique characteristics and needs of the customer.
278. Which factors are most important will vary from customer to customer and will, undoubtedly, be influenced by the customer's previous experience and existing systems. In a relatively straightforward ERP implementation, for example, the customer may choose the application first, followed by the infrastructure and the hardware. In a more complex implementation – an application requiring custom coding or requiring integration with an existing system, for example – a customer may first choose an SI. Still other customers may focus more on architecture and might choose a middleware platform first as a standard deployment environment. It is therefore not possible to say that any one element of a solution is chosen "first" by a customer and most probably varies substantially according to the experiences and expertise of customers' IT professionals.
279. Moreover, at least for standards-based, open systems, the choice of one component does not dictate the choice of other components from the same vendor, as discussed below.
280. The addition of Sun would give Oracle a broader range of products, in particular the combination of software and hardware (notably, SPARC servers) and, as noted above, this would enable Oracle to provide customers the additional option of acquiring a complete, optimised open standards-based hardware and software solution that allows them to reduce their integration costs.

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281. While Oracle believes this new offering will appeal to many customers, others will continue to prefer mixing and matching the solutions of different vendors in order to provide for the functionality that best meets their needs. As the integrated, optimised “application to disk” offering that Oracle intends to bring to market as a result of the Transaction is only an additional option to those already available to customers, the Transaction will not in any way affect the ability of customers to multi-source from multiple vendors. Oracle, like any of its competitors, tries to sell its customers the largest number of Oracle software products corresponding to their needs, but does not necessarily achieve this more often than any of its competitors. Moreover, Oracle emphasises the hot-pluggability and interoperability of its products with third-party standards-compliant products as part of its sales pitch. There is nothing specific to Sun’s products that would cause more customers to source all or more of their software and hardware from Oracle than is the case today.
282. *Absence of network effects.* The Transaction will not give rise to any significant network effects. Network effects in the software industry arise either when one user benefits from the fact that other users are using the same product or standard, ensuring compatibility between different users seeking to interact by means of the software in question (“direct network effects”), or when the widespread adoption of a particular product or standard leads developers of complementary software products to choose to make their complementary products compatible with the predominant standard (“indirect network effects”). There are no direct network effects because there is no benefit to one user of a database or middleware software product from having other users adopting the same product. Similarly, there are no significant indirect network effects, because most applications products support multiple vendors’ databases (as noted above, many products are complementary, *inter alia*, because of the use of common open standards such as SQL)¹⁵⁹ and because there are no complementary products developed specifically to interoperate with one vendor’s middleware products rather than another’s (as noted above, many products are complementary, *inter alia*, because of the use of common open standards such as Java). Consequently, no significant network effects arise in the present context, as the Parties’ database and middleware software is designed to interoperate with and connect different platforms and standards.

¹⁵⁹ Microsoft’s products may be one of the few exceptions to this general rule. Although Microsoft publicly supports standards and interoperability, some elements of its .NET technology are closed and proprietary, while other elements that purport to be open incorporate proprietary extensions. Nevertheless, Oracle’s (and other Java vendors’) database and middleware software products can also be deployed in a .NET environment. To the extent that there is less than full interoperability between .NET and Java products, the Transaction has the potential to generate positive network effects, enhancing the attractiveness of the open Java standard.

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283. Moreover, Oracle having a broader set of products or a vendor's lack of a wide range of solutions/products has not and will not inhibit entry into or success in the database or middleware market. Many software vendors have successfully entered and maintained or will maintain a position in these markets based on their ability to provide more effective and/or better quality solutions to address certain customer needs, *i.e.*, "best of breed" solutions.
- (c) *the role of product differentiation in terms of attributes or quality, and the extent to which the products of the parties to the concentration are close substitutes;*
284. As set out in Section 7, database and middleware products are significantly differentiated, and the Parties' respective database and middleware products are not particularly close substitutes.
- (d) *the role of switching costs (in terms of time and expense) for customers when changing from one supplier to another;*
285. In view of the widespread implementation of open, standards-based technologies and the introduction of new technologies that further enhance interoperability (such as web services and SOA) and new software licensing models such as open source, database and middleware switching costs continue to decrease over time.
286. The same database and middleware products are not required for all applications in order for the applications to speak to one another. Databases therefore do not need to be switched all at once – for example, users may use one database for one application and choose another for an alternative application. Moreover, most customers deploy a variety of database or middleware components throughout their enterprise, depending upon the particular task and requirements.
287. Customers who choose to switch database or middleware software components typically do so in the context of a software deployment project that in itself involves deployment, implementation and training effort. This is the situation in which competitive interaction between vendors normally occurs. In that context, where some implementation cost is incurred irrespective of the chosen vendor, the incremental cost and effort associated with choosing a new vendor for a particular type of database or middleware software (*i.e.*, switching from an incumbent to an alternative) is modest (though typically not zero). The most significant element of switching costs (which are relatively low) is not the migration process itself, but certain

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operational costs that may follow, *e.g.*, re-training costs of employees who might have been accustomed to a previous vendor's solution.¹⁶⁰

288. That said, there are a number of issues worth mentioning which relate to switching costs and the link between a customer's choice of software and its choice of hardware / operating systems. First, Java, which is the underlying technology of Oracle's middleware product and its upcoming applications release, Fusion Applications, is by design intended to make cross platform switching less costly. In other words, applications written and deployed in Java are intended to be independent of the underlying operating system and hardware platform, which enables "portability."
289. Second, Oracle's database has distinguished itself in the marketplace for thirty years by its commitment to cross-platform portability. Oracle's database currently supports all of the major operating system choices in the market. At the same time, Oracle's database is the most popular choice under SAP applications, and many other vendors' applications products.
290. Third, virtualization is becoming far more popular in enterprise IT, which enables multiple operating systems to run on a single server / hardware platform. Oracle's virtualization offering is based on the open source Zen hypervisor.
291. Regarding applications, it is important to note that Oracle's applications (including PeopleSoft and Siebel) support all major databases, including those from IBM and Microsoft. As explained above, this is a conscious decision made by Oracle to make its products more 'portable' and more attractive to its customers.
292. *(e) the degree of concentration or dispersion of customers;*
293. As middleware and database products are marketed to many companies of very different sizes, the customer base is relatively dispersed, which does not detract from the sophistication and buyer power that these customers often have in choosing their solution.

¹⁶⁰

The above describes the usual situation wherein a customer contemplates switching at a time of its choosing, in the context of a planned software deployment project. This contrasts with a situation where external factors force a switch away from an incumbent system, for example as a result of concerns over the longer-term support and upgrade capabilities of an incumbent vendor. This is situation is directly applicable in this Transaction, where there is a clear potential adverse impact on existing Sun customers if current uncertainty over Sun's medium-term prospects remains unresolved. In this scenario, implementation costs would be incurred by customers who decide to switch in order to ensure long-term security of support, and these costs are entirely caused by the switch, *i.e.*, they are not incurred at least partly in the context of a planned migration or new deployment. The Transaction benefits Sun customers by removing the uncertainty over the longer-term future of support for Sun products, hence removing any external impetus for disruptive and hasty change.

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- (f) *segmentation of customers into different groups with a description of the 'typical customer' of each group;*
294. Segmentation of any of the affected markets into groups of "typical customers" would not be appropriate or helpful. As described in Sections 6 and 7 above, customers choose database offerings or middleware components due to their technical or functional differences, but this is a function of the particular solution the customer is seeking to implement to address the business need, and not specifically related to the customer's size (whether in terms of employee numbers, turnover or some other measure), sophistication, organisation structure, industry (or "vertical" segment) or other characteristics. As such, there is no clearly defined customer group whose needs are sufficiently distinct from those of other groups to indicate the existence of separate product markets.
- (g) *the importance of exclusive distribution contracts and other types of long-term contracts; and*
295. Exclusive distribution and restrictive long-term contracts are not a feature of database or middleware software markets. As noted above, neither Oracle's nor Sun's distribution partners are exclusively tied to Oracle or Sun, respectively, and this is typical of software vendors generally. In fact, the parties have several partners and SIs in common, including IBM, Hewlett-Packard, Microsoft, Red Hat and SAP.
- (h) *the extent to which public authorities, government agencies, State enterprises or similar bodies are important participants as a source of demand.*
296. Worldwide, and particularly in Europe and North America, public authorities and other government agencies are an important source of demand for database and middleware products.
297. **Oracle database/middleware government customers.** Oracle derives revenues from several contracts with the United States government, state and local governments and their respective agencies, as well as government entities around the world. No single customer has accounted for more than 10% of revenues in the last three fiscal years. The products sold to government bodies are not customised, but are the same as those sold to private companies. Examples of Oracle database/middleware customers include the UK Ministry of Defence, the City of Edinburgh Council, the Council of Europe, the Federal Aviation Administration, the Finnish Ministry of Finance and the Department for Work and Pensions.
298. **Sun database/middleware government customers.** Examples of Sun's government customers include NASA, the US Military Health System, the

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Securities and Exchange Commission, the Federal Aviation Administration and the FBI.

Market entry

- 8.8 *Over the last five years, has there been any significant entry into any affected markets? If so, identify such entrants and provide the name, address, telephone number, fax number and e-mail address of the head of the legal department (or other person exercising similar functions; and in cases where there is no such person, then the chief executive) and an estimate of the current market share of each such entrant. If any of the parties to the concentration entered an affected market in the past five years, provide an analysis of the barriers to entry encountered.*

A. DATABASES

299. Generally the database market is a mature market, although there have been recent innovations which facilitate entry of new technologies and vendors.
300. MySQL itself obviously entered the market with relatively few resources and managed to be successful in a few short years. While it is a very popular product, it is not the technical equivalent of IBM, Microsoft, Sybase, Enterprise DB, Postgres, or Oracle and it is targeted for a very different set of uses. It is highly unlikely that MySQL would ever develop into the technical equivalent of IBM or Oracle, even though it currently competes well against Microsoft, and even if resources were unlimited. First, it would take many years and at least many hundreds of millions of dollars for MySQL to develop the kinds of features and functionality of IBM or Oracle. Second, the more features added to MySQL, the less attractive it will be addressing the part of the market which makes it popular in the first instance as MySQL's primary asset is its simplicity of deployment. Of course, any of the other major IT vendors – like HP or SAP – could enter the market through acquisition at any point and become a major force. Both HP and SAP would have a strategic interest in the database business. Sybase, Postgres or Enterprise DB (funded by IBM) are all far more technically comparable to IBM or Oracle than MySQL.
301. While some segments, such as the online transaction processing segment, have matured, other segments of database software, such as web-oriented applications and data warehousing appliances, have emerged only within the last decade or so and are characterised by frequent entry, facilitated by the widespread use of open, standards-based technologies that allow new products to fit into an existing database software environment relatively easily.
302. Moreover, important segments of the database software business are subject to rapid change and shifts in technology that create new opportunities for

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companies to enter the business *ab nihilo* or to expand from existing segments based on a technology-driven value proposition. An example of such a shift includes the recent emergence of columnar data stores. Even the online transaction processing category, which is relatively mature and therefore relatively less likely to see entry, is threatened with displacement by new technologies that allow applications to be run without a relational database.¹⁶¹

303. Over the last five years, a host of companies have entered the database software segment *ab nihilo*. Notable examples include Apache Derby, Asql, Datawaspl, H2, ITTIA, MonetDB, Netezza; Pyrrho DBMS, ScimoreDB and VistaDB.¹⁶² Annex 13 includes the name, address, telephone number, fax number and e-mail address of the head of the legal department (or other person exercising similar functions) for several entrants.
304. In addition to *ab nihilo* entrants, another successful entry strategy has been the entry of large hardware and software vendors who have expanded into the database software business, through acquisition, through internal development and organic growth or on the basis of partnerships with other vendors. For example, Hewlett-Packard recently introduced its Neoview database for high-end data warehousing, SAP re-acquired MaxDB, an open-source database, and Sun itself acquired MySQL.¹⁶³
305. The most prevalent entry strategy appears to be the launch of a new company that provides either new levels of performance, innovative technology or new functionality. Differentiation is most lucrative in segments where innovative capabilities, product qualities and enterprise support are still more important than adherence to standards and low prices. Therefore, on the one hand, leading vendors are investing to add more features and capabilities into their mainstream products and on the other hand several start-up companies have seen an opportunity in proposing highly differentiated products that target specific aspects of database software, *e.g.*, data warehousing, often focusing

¹⁶¹ For example, Workday, an HR application offered as Software-as-a-Service, does not use a traditional relational database.

¹⁶² The most significant entrant over the past ten or so years has clearly been Microsoft, which has entered the market with an organic product, Microsoft SQL Server. Microsoft has gained substantial traction by leveraging Windows / Windows Server and the Exchange server collaboration product. Enterprise DB has also had an impact in the database business largely through the support and investment from SAP and others. The competitive response in the market has been less from entry and more from the established players. The fact is that Oracle needs to invest substantial dollars in research and development in response to the seemingly unlimited resources of IBM and Microsoft. And, Oracle needs to price its products competitively in response to IBM and Microsoft, which are much larger overall companies and bring far more competitive dynamics to the table. In response to both IBM and Microsoft, database innovation cannot stand still and Oracle has in recent years release new versions at a faster pace than either IBM or Microsoft.

¹⁶³ See *The Forrester Wave: Application Server Platforms, Q3 2007*, page 27.

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on selected vertical markets or application scenarios. New entrants often start small, addressing a particular niche or customer group, and expand from there to service the rest of the market, e.g., additional functionalities, additional customer segments or additional geographies.

306. One example is Netezza, a computer hardware/software company, whose primary product is an MPP data warehouse appliance. Netezza is widely credited for either inventing or bringing renewed attention to the data warehouse appliance category, depending upon whether one regards long-time data warehouse technology vendor Teradata as having been in the data warehouse appliance category all along. The distinguishing feature of Netezza technology is its reliance on FPGAs and PowerPC processors rather than standard disk controller chips and Intel CPUs. Similarly, Vertica Systems is an analytic database management software company. The grid-based, column-oriented Vertica Analytic Database is designed to manage large, fast-growing volumes of data and provide very fast query performance when used for data warehouses and other query-intensive applications. Its design features include column-oriented storage organisation, which increases performance of sequential record access at the expense of common transactional operations such as single record retrieval, updates and deletes.¹⁶⁴
307. Yet another example is VistaDB Software, Inc., which was founded in March 2007 as part of the acquisition of the VistaDB assets from Vista Software. VistaDB Software, Inc., is dedicated to the advancement of the VDB TSQL database engine into the fully managed desktop marketplace for developers. A company called Vista Software, which had been active since 1997, had previously developed the software.¹⁶⁵
308. An example of a company that has recently expanded by targeting additional geographies through partnerships is ITTIA. On 24 March 2009, ITTIA, a global supplier of embedded lightweight relational database products and tools, based in Bellevue, WA, USA, announced that eSysTech, based in Brazil, has been appointed as its representative in the emerging Brazilian market. This development marks ITTIA's first step into the Brazilian market.
309. Open-source software's differentiated licensing and development model has further accelerated entry into the database category, as evidenced by the forking of MySQL by MariaDB and by the Google InnoDB Patch. MariaDB is a community-developed branch of the MySQL database dedicated to providing an independent source for MySQL code and technologies. The Google InnoDB Patch came about because Sun/MySQL declined to support

¹⁶⁴ See also Gartner, *Cool Vendors in Platform Database software*, 2006, 4 August 2006, pages 1-4.

¹⁶⁵ About VistaDB Software, Inc., <http://www.vistadb.net/about/company.aspx>, 27 May 2009.

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- modifications to InnoDB and MySQL to scale on servers with more than four cores. Google created a patch that it says will scale to 8 and 16 core servers. Such innovations indicate that the MySQL code is already beyond Sun's control and that companies with significant financial strength, such as Google, are technically able to create forks of MySQL at any point in time.
310. **MariaDB.** MariaDB was created by Monty Program Ab, a MySQL database engineering company, led by Michael "Monty" Widenius, the creator of MySQL and MyISAM. MariaDB is an enterprise-grade, community-developed branch of MySQL. It was released on 28 January 2008 and took two years to develop. Monty Widenius has surrounded himself with a highly specialised and experienced team, many of whom have worked on MySQL for a number of years.¹⁶⁶ The initial goal for the Maria project is to deliver a crash-safe version of MyISAM. According to Monty Widenius, MariaDB aims to provide "a community developed, stable, and always free branch of MySQL that is, on the user level, compatible with the main version." Mr. Widenius says "we strive for total interoperability with our upstreams and our own community. MariaDB will be kept up to date with the latest MySQL release from the same branch, *e.g.*, MariaDB 5.1 will be kept up to date with MySQL 5.1. We will do a merge from the MySQL branch for every new MySQL release or when there is some fatal bugfix applied to the main branch."¹⁶⁷
311. **Open Database Alliance.** In addition to MariaDB, MySQL also faces competition from the recently launched Open Database Alliance ("ODA"). On 13 May 2009, in Helsinki, Finland, Monty Program Ab and Percona (a MySQL services and support firm, established by MySQL expert Peter Zaitsev) announced the Open Database Alliance, a vendor-neutral consortium designed to become the industry hub for the MySQL open-source database, including MySQL and derivative code, binaries, training, support and other enhancements for the MySQL community and partner ecosystem.
312. The ODA is a prime example of how – post-Transaction – Oracle cannot control the output of an open-source product, particularly one like MySQL. The key point of the ODA is that if, for any reason, MySQL were to be taken in a direction that is at odds with the community, its development would simply be taken over by others. In fact, given the leadership of MySQL's

¹⁶⁶ The current MySQL Ab Maria team includes developer Jani Tolonen, a long-term employee of MySQL AB who has worked with Monty since 1997, and manager Patrik Backman, Director of Software Engineering at MySQL AB. See *The Maria Engine is Released*, 28 January 2008 <http://monty-says.blogspot.com/2008/01/maria-engine-is-released.html>.

¹⁶⁷ *MariaDB FAQs* as of 18 May 2009, <http://askmonty.org/wiki/index.php/MariaDB>.

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founder in the ODA, one could argue that ODA would simply return MySQL to its pre-Sun governance structure.

313. The ODA is a collection of companies with the stated intention of working together to provide software, support and services for MariaDB. Created by a founder of MySQL (who has a large following within the MySQL technical community), the ODA's web site states that "[t]he intent of the Open Database Alliance is to unify all MySQL-related development and services, providing a solution to the fragmentation and uncertainty facing the communities, businesses and technical experts involved with MySQL. Still under development, the Open Database Alliance is open to all businesses, organisations and individuals interested in helping create a new, centralised resource for MySQL and to ensure that it remains a top quality, high performance open source database."
314. Because MySQL is an open-source product, the ODA is able to use the same source code that is available to everyone – and which is identical to the code "owned" by Sun – and provide support and services relating to MySQL in direct competition with Oracle/Sun.
315. Oracle would expect to cooperate with the ODA in the sense that any improvements made by Oracle to MySQL would be publicly available for use by the ODA; meanwhile, Oracle would also compete with the ODA in the provision of support and services for MySQL.
316. The presence of the ODA, Google and many others makes clear that Oracle must contribute code at least as fast and as open as others or MySQL will simply fork into a more robust version outside of Oracle/Sun's ownership. From an economic and a competition policy perspective, the GPL is tantamount to Oracle providing a royalty-free, perpetual and intellectual property-free license for any competitor to take MySQL and compete.
317. **Google InnoDB Patch:** Innobase Oy is the developer of InnoDB, the leading transactional storage engine for the MySQL open-source database. Innobase is a subsidiary of Oracle and is a MySQL Enterprise Platinum partner. InnoDB is distributed by Sun/MySQL. Google created the Google InnoDB Patch as Sun/MySQL did not support modifications to InnoDB and MySQL which would have allowed them to scale on servers with more than four cores.¹⁶⁸ Sun/MySQL initially decided not to support the upgrades proposed

¹⁶⁸ There are multiple "upgrades" proposed by Google, which are best addressed by separating them into two categories:

a. Performance and scalability upgrades accepted by Sun and released in MySQL 5.4: These were minor patches and bug fixes that were tested and benchmarked starting in calendar Q3 of 2008. After a limited test the upgrades were released on 21 April 2009. Sun was able to do this because of the small

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by Google because the patches in question would have a significant architectural impact and thus needed to be reviewed extensively and in many cases modified to fit the current stage of development and merged with other alternative approaches proposed. This process has been under way since late 2008 and the patch was finally accepted by Sun and released in MySQL 5.4 on 21 April 2009. The fact that Google can simply take the source code, modify it and release it – thereby becoming the *de facto* vendor of that functionality – illustrates that the MySQL code base is already beyond Sun's control.

318. In sum, entry in the database software market has already occurred, and will occur in the future through innovation, expansion in terms of functionality, customer groups or geographies, and acquisition. Each of these strategies has proven to be successful in the past. In addition, open source databases have accelerated entrants due to the free availability of source code.

B. MIDDLEWARE

319. Overall, while some segments, such as the application server segment, have matured, other segments of middleware, such as business activity monitoring, business process management software and SOA, have emerged only recently (e.g., BAM approximately in 2004 and BPMS and SOA approximately in 2003) and are characterised by frequent entry, facilitated by the widespread use of open, standards-based technologies that allow new products to be fitted in an existing middleware environment relatively easily.
320. Moreover, the middleware business is subject to rapid change and shifts in technology that create new opportunities for companies to enter the business *ab nihilo* or to expand from existing segments based on a technology-driven value proposition. Examples of such shifts include the recent emergence of SOA, EDA, and extreme transaction processing. Even the application server category, which is relatively mature and thus relatively less likely to see entry, is threatened with displacement by new technologies that allow applications to be run without an application server or that enable application servers to be incorporated in applications. In a May 2009 press release, Fabrizio Biscotti, research director at Gartner, observed that the recent economic turmoil has had an impact on the worldwide application infrastructure and middleware market. Gartner expects recovery in the sector

size of the patches, the limited impact on other areas of the code, the high priority of improving performance and scalability, and the lack of competing proposals for how to improve performance and scalability from other community contributors or internal engineering.

b. Other more major functional changes to MySQL: Google has licensed to MySQL (via a Contributor Agreement) approximately ten other functional changes to MySQL code which are in various stages of review by Sun's Engineering team.

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to be “solid,” however, “because pent-up demand has already started to build up.”¹⁶⁹ Biscotti remarked, “we expect the competition at the top end of the market to become more fierce, to the benefit of customers.”¹⁷⁰

321. Over the last five years, a host of companies have entered the middleware segments *ab nihilo*. Examples include Majitek, Terracotta, Zend Technologies¹⁷¹ and Gigaspaces. The list of new start-ups includes also Appistry, Aumega Networks, jNetX, Kabira, OpenCloud, Mobicents, Paremus, Recursion Software, WareLite and others. Annex 13 includes the name, address, telephone number, fax number and e-mail address of the head of the legal department (or other person exercising similar functions) for several entrants.
322. Other than *ab nihilo* entry, the middleware market is also characterised by shifts of emphasis by established players, or entry into new middleware segments from neighbouring segments. For example, IBM and Tibco shifted a significant proportion of their middleware product portfolios from application and integration suites to ESBs and BPMS. This trend appears to have been a result of rapid growth in these middleware segments relative to other segments and repackaging.¹⁷² Pegasystems, for most of its history (since the early 1980s), built financial services solutions based on patented rules-processing technology. Three years ago, Pegasystems entered the BPMS segment of middleware with its SmartBPM product.¹⁷³
323. The most prevalent entry strategy appears to be the launch of a new company that provides either new levels of performance, innovative technology or new functionality. Differentiation is most lucrative in segments where innovative capabilities, product qualities and enterprise support are still more important than adherence to standards and low prices. Therefore, on the one hand, leading vendors are investing to add more SOA-oriented features and capabilities into their mainstream products and on the other hand several start-up companies have seen an opportunity in proposing highly differentiated application platforms that target specific aspects of middleware, e.g., XTP, often focusing on selected vertical markets or

¹⁶⁹ *Gartner Says Worldwide Application Infrastructure and Middleware Market Revenue Increased 6.9 Percent in 2008*, <http://www.gartner.com/it/page.jsp?id=966512>, 6 May 2009.

¹⁷⁰ *Gartner Says Worldwide Application Infrastructure and Middleware Market Revenue Increased 6.9 Percent in 2008*, <http://www.gartner.com/it/page.jsp?id=966512>, 6 May 2009.

¹⁷¹ See also Gartner, *Cool Vendors in Platform Middleware*, 2006, 4 August 2006, pages 1-4.

¹⁷² See also Gartner, *Dataquest Alert: Top Five Vendors in PPMW Worldwide Drive Explosive Growth in ESBs*, 5 June 2007, page 2.

¹⁷³ See *The Forrester Wave: Application Server Platforms, Q3 2007*, page 27.

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application scenarios. New entrants often start small, addressing a particular niche or customer group, and expand from there to service the rest of the market, *e.g.*, additional functionalities, additional customer segments or additional geographies.

324. Early innovators in such segments can build a reputation regardless of their size or breadth of offering. For example, Majitek entered the market in the field of “grid computing” in 2001 by supplying the “Majitek GridSystem,” which provides a Java Platform and XML-based application platform. Similarly, Terracotta entered the market in 2003 by supplying in the field of “grid computing” the “Terracotta Server,” which provides a Java-based, clustered, distributed data-caching hub. Zend Technologies entered the market in 2000 by providing an attractive alternative to the single-platform Microsoft offerings and the complexity of Java: it leads almost single-handedly and facilitates industry adoption of PHP. In doing so, Zend has attracted investment from a variety of venture capital firms.¹⁷⁴ Its customer base includes large organisations and enterprises from many industries, including NASA, RockStar Games, Orange, KPN, Martindale, Salesforce.com and Lockheed Martin. As mentioned above, PHP is a scripting language designed for building the server-side logic of data-centric web applications. Managed by the PHP Group, PHP is an open-source alternative to Adobe ColdFusion, Java Server Pages and Microsoft ASP.NET.¹⁷⁵ On 7 April 2009, Zend announced the general availability of Zend Server, a web application server for PHP-based web applications. It provides a complete “IT-ready solution” that integrates Zend Studio for Eclipse and Zend Framework to make it faster and easier to develop and deploy rich, reliable and secure web applications using PHP.¹⁷⁶
325. GigaSpaces, another relatively recent entrant, was founded in 2000. Today, its XAP application platform supports XTP with linear scalability and takes full advantage of SOA and Grid computing. Its application server is currently in use by some of the world’s leading organisations, such as Dow Jones, Nortel Networks and Virgin Mobile. In addition, SpringSource, the company behind the Spring Portfolio enterprise Java application platform, recently announced a technology partnership with GigaSpaces that aims at

¹⁷⁴ See <http://www.zend.com/en/company/investors/>. Venture capital firms that have invested in Zend include Azure Capital Partners, Greylock Partners, Index Ventures, Intel Capital and SAP Ventures.

¹⁷⁵ See also Gartner, *Cool Vendors in Platform Middleware*, 2006, 4 August 2006, pages 1-4.

¹⁷⁶ *Zend Technologies Launches Zend Server for High Performance, Reliable, and Secure Deployment of PHP-Based Web Applications*, <http://www.zend.com/en/company/news/press/zend-technologies-launches-zend-server-for-high-performance-reliable-and-secure-deployment-of-php-based-web-applications>, 7 April 2009.

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further integration of their respective programming and middleware offerings.

326. Another example of a company expanding into other segments of the middleware business is Pegasystems. For most of its history, since the early 1980s, Pegasystems built financial services solutions based on patented rules-processing technology. In 2004, Pegasystems entered the application server platform business with, according to Forrester, “an innovative combination of business rules and BPM.” Forrester observed, in 2007, “Pega is trying to catch the next wave of business applications based on SOA and PBM [...] At about USD 125 million in annual revenues, Pegasystems is much smaller than the big vendors in the application server category, but its 25% annual growth rate is much higher than most of the other vendors.”¹⁷⁷ According to Forrester, Magic Software has also been pursuing the next wave of business applications based on SOA and BPMS, “but is targeting small and medium-sized businesses and departments within large enterprises.” It has “re-made” itself a number of times and Forrester reports that its latest transition “moved the company from reliance on direct sales to a channel partner model [...] Magic iBolt and eDeveloper will be of interest to groups within enterprises seeking fast productivity and ease of use.”¹⁷⁸

327. In other recent developments, Pegasystems announced, on 19 May 2009, its new SmartPaaS Platform-as-a-Service (“PaaS”), which, its says, will “enable business people to quickly develop and deploy dynamic business applications with all the benefits of cloud computing.”¹⁷⁹ The SmartPaaS solution was recently selected by Forrester for the 2009 Technology Innovation Showcase at the Forrester IT Forum conference which took place in Las Vegas in May 2009. Pegasystems’ offering was developed with the support of Amazon Web Services (“AWS”) and Capgemini. The product is aimed at organisations looking to implement business transformation projects quickly and cost-effectively.

8.9 *In the opinion of the notifying parties, are there undertakings (including those at present operating only outside the Community or the EEA markets) that are likely to enter the market? If so, identify such entrants and provide the name, address, telephone number, fax number and e-mail address of the head of the legal department (or other person exercising similar functions; and in cases where there*

¹⁷⁷ See Forrester, *The Forrester Wave: Application Server Platforms, Q3 2007*, 11 July 2007, page 27.

¹⁷⁸ See Forrester, *The Forrester Wave: Application Server Platforms, Q3 2007*, 11 July 2007, page 27.

¹⁷⁹ *Pegasystems Announces New Cloud Offering for Dynamic Business Applications*, <http://www.pegasystems.com/NewsEvents/PressRelease/release.asp?prid=453>, 19 May 2009.

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is no such person, then the chief executive). Explain why such entry is likely and provide an estimate of the time within which such entry is likely to occur.

328. **Databases future entry trends.** In relation to database, IDC observes that the current economic climate means that there will be “very sluggish growth for the next 12-18 months” but “growth should resume as financial conditions improve.” IDC nevertheless notes that “downward pricing pressure driven by open source, cloud computing, and other alternative licensing models will result in modest rather than robust growth after 2010 or 2011.”¹⁸⁰
329. More specifically, the following trends and developments are likely to play an important role in shaping the industry in the near to medium term:
- **The adoption of new hardware appliance technologies.** As detailed above, the trend started by Netezza and Terradata is likely to accelerate as more companies enter the specialised database appliance market.
 - **Column-oriented databases.** The majority of database software vendors in the marketplace have entered the market as newly formed companies, often established by former employees of other database software companies. Analysts count numerous vendors in the database software market and the majority of these have entered without having established a presence in a neighbouring market first. Therefore, *ab nihilo* entry has occurred and is likely to continue to be most common in the database software market. It is by definition impossible to predict the identity of such future entrants, however. Indeed, it may be expected that a number of vendors already present on the highly segmented database software market will expand their offerings in any of a number of ways (*e.g.*, by adding functionalities organically or through acquisition, adding deployment options, or regional strength) as has occurred in the database software market in the past.
 - **Open-source databases.** Of course, the most rapid form of entry can and should come from new implementations of existing open-source code, for example, MariaDB, Drizzle, Google and the Open Database Alliance, all based on MySQL. Nothing prevents any major technology vendor from taking the MySQL code base and creating a new implementation and product. MySQL, of course, is not the only open-source database upon which new entry can be based. Ingres, which has created new recent partnerships with RedHat/JBoss, is another code base which, itself, is gaining market traction, but which could also be forked to create a new competitive entrant.

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330. **Middleware future entry trends.** According to Gartner, the existing J2EE and .NET platform middleware technologies “are increasingly inadequate to cover needs for extensive scalability and performance, event-based programming styles, advanced SOA and dynamic application developments. New programming models, deployment options, licensing schemes, technologies and architectures are emerging to overcome the limitations of the mainstream application server products and challenge the *status quo*.”¹⁸¹ The common denominator in this sector is that middleware is fast focusing on business performance and event-driven, service-oriented architectures.
331. More specifically, the following trends and developments are likely to play an important role in shaping the industry in the near to medium term:
- **The adoption of new application design technologies such as SOAs, web services and AJAX.** SOA is an application architecture in which all functions, or services, are defined using a description language and have standard interfaces that are “called” to perform business processes. Each interaction is independent of other interactions and independent of the interconnect protocols of the communicating devices. Because the interfaces are platform-independent, a client from any device using any operating system in any language can use the service. Ruby on Rails is one of the recently adopted languages (others include PHP, Perl, Python and Groovy) competing with Java. Ruby on Rails is an open-source web application development framework on which several vendors can build their applications. In addition, as discussed in Section 7, there are emerging platforms within Java designed to eliminate the need for application servers. The Spring application framework is the most promising, offering an alternative application deployment approach that does not require an application server. Moreover, AJAX (Asynchronous JavaScript and XML) is a group of inter-related web development tools used for creating interactive web applications and dynamic web pages on the client side. AJAX offers increased responsiveness, interactivity, speed, functionality and usability of web pages achieved by exchanging small amounts of data with the server “behind the scenes” so that entire web pages do not have to be reloaded each time there is a need to fetch data from the server. AJAX is a cross-platform framework usable on many different operating systems, computer architectures and web browsers as it is based on open standards such as JavaScript and the DOM. There are free and open-source implementations of suitable frameworks and libraries.

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See IDC, *Worldwide database 2007 Vendor Analysis: Top 10 Vendor License Revenue by Operating Environment and 2008 Year in Review*, Carl W. Olofson, 2008, page 14.

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- *Convergence of extreme transaction processing ("XTP") technologies.*¹⁸² The aim of transaction processing applications is to enable efficient, reliable, concurrent and real-time access (read/update) to a shared database by executing application programs commonly referred to as "transactions." The development of the Internet and the high penetration rate of technologies such as broadband and wireless have enabled the development of always-on, global scale and consumer-oriented transactional systems that are established on web-enabled, highly distributed and standards-based architectures.

332. *Details of likely entrants.* The considerations that are described above in relation to database apply equally to middleware. Entry strategies tend to be similar across software markets and typically involve either *de novo* entry on the basis of new functionality or technological innovation, or expansion form neighbouring markets. The fluid boundaries between middleware segments, the technological innovations described above and the continuous history or abundant entry into even the most mature segments make it almost certain that middleware will experience abundant entry or expansion.

8.10 *Describe the various factors influencing entry into affected markets, examining entry from both a geographical and product viewpoint. In so doing, take account of the following where appropriate:*

- (a) *the total costs of entry (R & D, production, establishing distribution systems, promotion, advertising, servicing, and so forth) on a scale equivalent to a significant viable competitor, indicating the market share of such a competitor;*
- (b) *any legal or regulatory barriers to entry, such as government authorization or standard setting in any form, as well as barriers resulting from product certification procedures, or the need to have a proven track record;*

¹⁸¹ Gartner, *Trends in Platform Middleware: Disruption Is in Sight*, September 2007, page 1.

¹⁸² XTP is defined as "an application style aimed at supporting the design, development, deployment, management and maintenance of distributed transaction processing applications characterised by exceptionally demanding performance, scalability, availability, security, manageability and dependability requirements." This definition would cover a wide range of applications from consumer-facing online trading, betting and travel booking applications to real-time risk management applications for enterprises. XTP applications typically are business-critical because their unavailability or inefficient performance makes it impossible for large numbers (up to millions) of users to accomplish their tasks, thus seriously affecting customer satisfaction, the ability to close deals and the company's bottom line. All leading middleware vendors are therefore investing to add more XTP-oriented features and capabilities into their mainstream products. In any event, according to Gartner (*Predicts 2007: Application Platforms on the Verge of Change*, November 2006), in the near future, a new generation of application platforms stemming from the convergence of XTP technologies may challenge Java EE's and .NET's position as the platform of choice for large-scale, business-critical operational applications.

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- (c) *any restrictions created by the existence of patents, know-how and other intellectual property rights in these markets and any restrictions created by licensing such rights;*
- (d) *the extent to which each of the parties to the concentration are holders, licensees or licensors of patents, know-how and other rights in the relevant markets;*
- (e) *the importance of economies of scale for the production or distribution of products in the affected markets; and*
- (f) *access to sources of supply, such as availability of raw materials and necessary infrastructure.*

333. **Databases.** There are no significant technical, legal or capital barriers to entry into the database software market, a fact proven by the history of entry and exit in this business, segments of which are witnessing explosive growth. Database software is to a large extent based on open programming languages and standards and is not subject to any material legal restrictions, nor is the distribution of software, which now often takes place over the Internet.

334. Moreover, the availability and adoption of non-proprietary open-source database software components across the database software spectrum largely eliminate any fixed-cost barriers to entry. Similarly, technology barriers are virtually non-existent, as open-source products are non-proprietary and readily available for modification, improvement and redistribution.

335. The underlying technology stack presents no barriers to entry, as many database software products are open. Equally, entrants with a viable business concept generally have sufficient access to financial resources, be it cash generated in neighbouring business areas or external financing through private investors or venture capital providers (the source of funding for many innovative database software vendors in the market today, such as Vertica).

336. All new entrants, as well as existing market players, need to achieve the minimum scale and scope necessary to support the R&D investment that is required for new software. Such “barriers” are low, however, as a small group of qualified developers is generally sufficient to develop a new solution. Moreover, entrants relying on the open-source development model have been able to count on a growing community of thousands of volunteer developers who continuously improve and propose extensions to the product. The creation of MariaDB, discussed above, in such a short timeframe amply demonstrates both the capabilities of the open-source community and the talismanic influence that a single individual can have in software markets. In addition, the history of the database software business demonstrates that expansion across segments by organic growth and/or acquisition is entirely

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feasible and allows providers with a narrow range (in terms of either functionality or geography) to grow into broad-range providers.

337. The demand from the business community for new and more sophisticated functionalities that allow companies to meet new and growing business needs in real-time will continue to be the main driver for entry into the database software sector. Analysts conclude that the database software business still has margins of growth in the coming years. This growth will certainly increase the incentives for new entry in the various database software segments, where new database software vendors will be seeking business opportunities.
338. *Middleware.* As with databases, there are no significant barriers to entry into middleware.
339. In addition to the factors mentioned above in relation to databases, middleware vendors benefit from partnerships with database or applications vendors that facilitate entry or expansion. As outlined above, expansion from neighbouring middleware segments or other software markets is easy and has occurred. This means that entry by expansion can easily be financed from cash generated in other software markets (as in the case of Microsoft). Start-ups can rely on external financing through private investors or venture capital providers (the source of funding for many innovative middleware vendors in the market today, such as Zend and Gigaspaces).
340. For example, FiveRuns is a systems management software maker that was founded in 2005 and began its business using a SaaS delivery model for its product designed to monitor systems running Apache, JBoss, Linux and more. The company over the past year updated its business model and launched a new software platform in May 2007, Rails Management Suite. In October 2007, FiveRuns garnered funding from Austin Ventures to support their product built on the Ruby on Rails platform.¹⁸³ Ruby on Rails is becoming a significant framework for web application development and FiveRuns is squarely positioned to augment this wave by delivering its products. As described above, Ruby on Rails is an open-source web application development framework on which FiveRuns built its management platform. The company has made available two applications from the suite: RM-Manage and RM-Install. The latter is a freeware application that helps customers develop, deploy and manage Rails applications. According to the company, in October 2007, the RM-Install had been downloaded more than 1,000 times since its release in May 2007.

¹⁸³ The company received USD 6.2 million in funding from Austin Ventures. This was in addition to the USD 2.95 that it had already received in 2005 from the same source. See <http://www.networkworld.com/news/2007/102907-five-runs-further-ruby-on-rails.html>.

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341. Another example is Jitterbit, illustrating that within a very limited period of time an *ab nihilo* entrant can be both financially successful and have its product deployed in the largest of enterprises. Jitterbit is an open-source integration product allowing end users to design, configure, test and deploy integration processes. Jitterbit released its first product in May 2006, when it also announced The Mareva Group as its first customer. Within less than two years, Jitterbit has already secured significant venture capital funding, opened three offices in the US and counts NASA, Continental Airlines, the State of Iowa and Scarlet as its customers, proving that scale is not a necessary condition for early success.¹⁸⁴
342. Geographic focus can also be a successful strategy for new entrants, which can use their regional expertise to expand into neighbouring geographies. Potentially strong regional players would include Kingdee in China, NEC, Hitachi and Fujitsu in Japan, TMax in South Korea and Pramati in India. For example, in 2005, Fujitsu entered into an agreement with Software AG to leverage the companies' complementary technology platforms and global R&D expertise in order to jointly develop and market SOA-based solutions.

Research and development

- 8.11 *Give an account of the importance of research and development in the ability of a firm operating the relevant market(s) to compete in the long term. Explain the nature of the research and development in affected markets carried out by the parties to the concentration.*

In so doing, take account of the following, where appropriate:

- (a) *trends and intensities of research and development in these markets and for the parties to the concentration;*
- (b) *the course of technological development for these markets over an appropriate time period (including developments in products and/or services, production processes, distribution systems, and so on.);*
- (c) *the major innovations that have been made in these markets and the undertakings responsible for these innovations; and*
- (d) *the cycle of innovation in these markets and where the parties are in this cycle of innovation.*

343. **Industry trends of R&D.** As already noted above, the database and middleware businesses in which Oracle and Sun are both active are very

¹⁸⁴ See <http://www.jitterbit.com/Company/customers.php>.

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much technology- and innovation-driven. Rapid technological advances in hardware and software development, evolving standards in computer hardware and software technology, changing customer needs and frequent new product introductions and enhancements characterise the middleware and databases space. All market players dedicate a significant amount of resources to R&D efforts to maintain and improve their positions in these highly competitive markets.

344. As previously pointed out, the middleware business in particular has developed through a process of continuous technological upheaval in which talented software developers vie with one another to be the first to develop and market a solution for automation of a certain business process. The first to develop a certain product will often gain an important position rapidly, only to see its share decline again over time as others develop new and more efficient approaches to the same business process. To grow, companies must therefore necessarily put R&D at the core of their business strategies to develop new applications and further develop and improve their existing products.
345. These market characteristics are also evidenced by the successes of both smaller and larger middleware companies that are and were behind some of the major innovations in this sector. This reliance on innovation has not changed, and the market at present is still witnessing major new developments, with innovation acting as a driving force. Most important among those developments is the increased use of Internet-based distribution methods and the advent of web services and event-driven business applications.
346. Thus, innovation in the middleware and database sectors is a continuous process. The acquisition by Oracle of Sun will not reduce R&D and innovation in either sector. Rather, it will combine the complementary development strengths and resources of the two companies. The efficiencies that result from this will promote and strengthen innovation and lead to lower prices and increased product quality. In this respect, please also *see* Section 9.3 below.
347. ***Oracle R&D expenditures.*** Oracle develops the majority of its products internally. Internal development allows Oracle to maintain technical control over the design and development of its products. In addition, Oracle has also acquired technology through business acquisitions and purchases or licenses of intellectual property rights from third parties in certain circumstances. A list of Oracle's recent acquisitions in the relevant market can be found under Section 4.2.3.
348. Oracle's R&D expenditures have remained substantial over the years. In 2008 Oracle invested USD 2.7 billion on research and development to

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enhance its existing portfolio of products and services and to develop new products, features and services. As a percentage of total revenues in 2008, 2007 and 2006, R&D expenditure accounted for 12%, 12% and 13% respectively. As a percentage of new software license revenues, R&D expenditures were 36%, 37% and 38% in FY08, 07 and 06 respectively. As of 31 May 2008, Oracle employed 20,607 full-time employees in research and development, accounting for 24% of all Oracle employees.¹⁸⁵

349. ***Sun's R&D expenditures.*** Sun also develops most of its products internally, with selective acquisitions and arrangements with alliance partners to complement and supplement its product development pipeline. Please refer to Section 4.2.3 above for a list of Sun's recent acquisitions.
350. Sun's total R&D expenses have remained substantial over the years, although the amount of expenditure has been decreasing recently. As a percentage of net revenue in 2008, 2007 and 2006, Sun's R&D expenditure accounted for 13.2% in 2008, 14.5% in 2007 and 15.7% 2006 respectively. R&D expenses amounted to approximately to USD 1.8 billion in 2008, USD 2.0 billion in 2007 and USD 2.0 billion in 2006.
351. Sun's R&D expenses decreased by USD 174 million, or 8.7%, during FY08, as compared to FY07. This was primarily due to a USD 151 million decrease in compensation and benefit expenses, including incentive-based compensation, a USD 17 million decrease in prototype expenses associated with new product introductions and a USD 11 million decrease in depreciation expense. These decreases were partially offset by a USD 5 million increase in expenses from outside service providers. The decrease in R&D expenses of USD 38 million during FY07, as compared to FY06, was primarily due to the restructuring of Sun's business. The decrease included USD 136 million in headcount reductions, USD 41 million in outside service reductions, USD 17 million in depreciation, USD 13 million in prototype expenditure reductions and USD 10 million in stock-based compensation. These decreases were mainly offset by a USD 179 million increase in compensation for continuing employees.¹⁸⁶

Cooperative agreements

- 8.12 *To what extent do cooperative agreements (horizontal, vertical or other) exist in the affected markets?*

352. Please refer to Section 8.13 below.

¹⁸⁵ These numbers relate to all of Oracle's business.

¹⁸⁶ See Sun's Form 10-K Annual Report, page 26 and page 35.

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- 8.13 *Give details of the most important cooperative agreements engaged in by the parties to the concentration in the affected markets, such as research and development, licensing, joint production, specialization, distribution, long term supply and exchange of information agreements and, where deemed useful, provide a copy of these agreements.*
353. Oracle has agreements in place with approximately 21,500 partners worldwide and approximately 12,250 across EMEA, under which such partners have the right to resell and/or implement Oracle products. As discussed under Section 8.2, these partners are a combination of hardware and platform partners, systems integrators and independent resellers and distributors.
354. Oracle does not typically engage in other agreements except for the occasional informal arrangement (typically in the form of non-binding memoranda of understanding) under which Oracle cooperates with another entity (typically a large consultant) that has specific knowledge and expertise of providing software solutions for certain customers. The purpose of such cooperation is to propose a solution for the particular industry sector using Oracle's products and the consultant's implementation skills (which may often include customisations of Oracle's standard products, to respond to particular customer requirements).
355. With regards to middleware, Sun has formed strategic alliances with a number of SIs and ISVs, along with some hardware OEMs. It also has distributors and resellers (*see* under Section 8.2 and Section 7.7). The total number of Sun's partners worldwide who are accredited software platform partners is 2,246. Sun also has accredited specialised software partners for each of its database and middleware products. Therefore, there are 47 Sun partners specialising in SOA; 25 Sun partners specialising in MySQL; and 10 Sun partners specialising in GlassFish. All partners who have either a platform or specialty accreditation are considered Sun Partner Advantage Program members. Sun offers the Sun Partner Advantage Program for ISVs, SIs and Resellers. The program has three membership levels and each level has a set of requirements and benefits that are associated with it. Generally, as the partner's investment in certifications, coverage, development of complementary solutions, and/or promotion of Sun products and services increases, they receive higher-level benefits. Sun's partner community also includes Application providers. These are ISVs that incorporate Sun products into their own software solutions and then sell the combined product. Application providers who operate on a global scale participate in the Sun Partner Advantage Program Global Application Provider Program.
356. While Oracle and Sun do not have direct knowledge of the details of other vendors' partner programs, it is clear that most vendors in the industry have

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in place partnership agreements with ISVs, hardware partners and SIs similar to those of Oracle and Sun.

Trade associations

8.14 *With respect to the trade associations in the affected markets:*

- (a) *identify those of which the parties to the concentration are members;*
- (b) *identify the most important trade associations to which the customers and suppliers of the parties to the concentration belong.*

Provide the name, address, telephone number, fax number and e-mail address of the appropriate contact person for all trade associations listed above.

357. Oracle and Sun are not members of any trade associations specifically related to the affected markets.

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SECTION 9

Overall market context and efficiencies

9.1 *Describe the worldwide context of the proposed concentration, indicating the position of each of the parties to the concentration outside of the EEA territory in terms of size and competitive strength.*

358. For details of the parties' worldwide revenues and market shares please see Section 7 above and Annexes 2, 17, and 18. Oracle primarily offers database, middleware and applications software to businesses on a worldwide basis. Sun primarily offers hardware servers, storage, microprocessors and operating systems on a worldwide basis. Sun also licenses technologies related to the Java platform and programming environment. In general, the same competitive considerations apply to the software and hardware business globally as in the EEA.

9.2 *Describe how the proposed concentration is likely to affect the interests of intermediate and ultimate consumers and the development of technical and economic progress.*

359. The Transaction is customer-driven and will benefit both current and future customers and partners of Oracle and Sun. Existing joint customers have been communicating their support for the deal because of the overwhelmingly complementary nature of the transaction. Future customers of both Oracle and Sun will benefit from the enhanced products and services that will result from the Transaction. Oracle and Sun partners are expected to benefit by working with a single vendor to address customer needs for enterprise systems. Indeed, many customers have been asking Oracle to take on a broader role to reduce complexity, risk and cost by delivering a highly optimised stack based on standards. This Transaction delivers that benefit to customers and enhances Oracle's commitment to open standards and choice. As one industry analyst has stated: "The two companies' portfolios are totally complementary. That's important and good news for Sun's customers because existing hardware products are not likely to be discontinued and replaced by other Oracle products. Oracle shows an explicit commitment to expand and capitalise on this hardware business."¹⁸⁷

360. It is well-recognised by economists that vertical or conglomerate mergers between manufacturers of complementary products are likely to be efficiency-enhancing because such mergers tend to eliminate excessive mark-

¹⁸⁷ Forrester, *Oracle's Sun Acquisition Is a Game Changer*, 22 April 2009.

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ups along the vertical stack (when such excessive mark-ups are present).¹⁸⁸ When it comes to software products it is inevitable that their marginal costs are marked-up so that a firm can make some contribution to its fixed costs. Consequently, when a firm has a broader array of software and other complementary products it is more able to implement efficient pricing and benefit consumers. This is especially so if competition limits the supplier's overall market power, as is the case with all the affected markets in this Transaction.

361. Oracle's acquisition of Sun is consistent with its strategy to provide complete, open and integrated systems. Oracle's and Sun's products are based on open standards and, post-closing, Oracle plans to engineer a complete, integrated and open system – "applications to disk" – wherein all the pieces fit and work together so customers do not have to do it themselves. Customers will benefit from reduced system integration costs and increased system performance, reliability and security. Importantly, however, this complete solution will be an added choice for customers. Oracle will continue to sell all of Oracle and Sun's technology – applications, middleware, database, operating systems, servers, and storage – as separate components as well. This will enable customers to mix-and-match and also deploy services of integrators, such as IBM, if that is a preferable strategy.
362. As noted in Section 1, Oracle and Sun believe that the Transaction would offer customers and respective business partners the following important benefits:
 - **Investment protection:** The Transaction will protect the very substantial investments that existing Sun customers have made. Many Sun customers had concerns about the long-term viability of the company and the roadmap for specific products, most notably its SPARC business, and will now be reassured that they do not need to migrate to other software or hardware vendors, as Oracle has publicly stated its commitment to invest in and support existing Sun products.¹⁸⁹ Furthermore, many large corporations who today use both Oracle and Sun products would have their maintenance costs potentially reduced as support would be provided by a single organisation.

¹⁸⁸ See, e.g., Church, Jeffrey, "Vertical Mergers," *Competition Law and Policy*, ABA Section of Antitrust Law (2008): 1455-1501; Scheffman, David T. and Richard S. Higgins, *George Mason Law Review*, Vol. 12, No. 4 (2004): 967-977; and Riordan, Michael H. and Steven C. Salop, "Evaluating Vertical Mergers: A Post Chicago Approach," *Antitrust Law Journal*, Vol. 63 (1995): 513-568. See also the Commission's "Guidelines on the Assessment of Non-Horizontal Mergers under the Council Regulation on the control of concentrations between undertakings," paragraph 13.

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- **Broader, more innovative products:** The Parties believe that as a result of the Transaction, and the enhanced capabilities of the combined entity's software development organisation, the combined product line would be broader, better integrated and more innovative than the existing solutions. The acquisition of Sun will enable the merged company to compete better with other broad-based vendors, most notably IBM, Microsoft and Hewlett Packard. Oracle will be able to offer to customers, as an additive option to its existing software portfolio, software-optimised hardware that integrates all of the enterprise components: hardware, storage, database, middleware and applications. While that option will bring significant benefits to customers by delivering increased performance and reducing the very substantial integration costs that customers face, all of the standards-based, open, components that the combined entity will offer will remain available on a stand-alone basis.
- **Reinvestment in critical technologies and innovations:** Sun's SPARC chip, the Solaris operating system, and the Java platform are all critical, R&D intensive technologies that require ongoing substantial financial investment, against competitors such as Microsoft, IBM, Hewlett-Packard and Intel, which are all much larger and better financed than Sun was pre-Transaction.¹⁹⁰ Oracle's superior financial position means that it has the resources to invest more heavily in these R&D-intensive technologies than Sun does, particularly in this critical macroeconomic environment.¹⁹¹ Among other things, the Transaction will likely reduce the migration of Sun's top design engineers and architects to competitors such as Google or IBM as those employees see the increased resources Oracle can bring to these critical technologies and research projects. Oracle has a proven track record of investing in and maintaining the products of acquired companies. For example, in August 2008, just months after acquiring BEA, Oracle delivered a new version of BEA's WebLogic server, demonstrating its commitment to BEA customers in

¹⁸⁹ See Oracle's FAQs about the transaction available at <http://www.oracle.com/sun/sun-faq.pdf> and the letter from Oracle President Charles Phillips to customers and partners, available at <http://www.oracle.com/sun/letter.html>.

¹⁹⁰ For a discussion of the impact of constrained financing on firms' ability to compete effectively, see Shehadeh, Ramsey, Joseph Larson, and Ilene K. Gotts, "The Effect of Financial Distress on Business Investment: Implications for Merger Reviews," *Antitrust Magazine*, Vol. 23, No. 2 (2009): 12-17.

¹⁹¹ One measure of the strength of Oracle's financial position relative to Sun's is its superior bond rating. For example, Moody's rating for Sun is Ba1, whereas its rating for Oracle is AA2 and is not expected to change following the proposed Transaction. ("Moody's says Oracle's ratings unaffected by Sun acquisition announcement," *Moody's Global Credit Research*, 20 April 2009.) Similarly, Fitch's ratings following the merger announcement are BBB- for Sun and A for Oracle. ("Fitch Affirms Oracle's Ratings at 'A/F1' on Merger," *Business Wire*, 20 Apr. 2009.)

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practice.¹⁹² PeopleSoft's human resources applications are another example of products that have enjoyed substantial continued investment under Oracle's stewardship. Moreover, Oracle has a track record for retaining top engineering and sales talent from acquired companies.

363. The above benefits will accrue to all types of customers (existing and future).
364. *Existing customers will benefit.* Oracle has already demonstrated on a number of occasions its ability and willingness to support the legacy applications and customers of an acquired vendor (most notably in the cases of PeopleSoft, Siebel and BEA). As Roger W. Parks, President of Quest International's Users Group, notes, "Oracle's recent acquisitions have proven to be productive and efficient additions that make our lives as Oracle customers easier, reduces the complexity and cost of our IT-based business solutions, and increases the value of our investments in our Oracle products and services."
365. Users of Sun software will also have reduced total costs of ownership from Sun's products being integrated more closely into Oracle's Fusion middleware. This is one of the reasons why many customers common to both Oracle and Sun welcome the Transaction. For example, as Norm Fjeldheim, the SVP and CIO of Qualcomm notes: "The Oracle acquisition of Sun makes a lot of sense to me and aligns well with Oracle's strategy of reducing operational costs for their customers. By acquiring Sun, Oracle will be able to provide an integrated hardware and software solution, in which all the components of the technology stack are optimised to work well together. This optimisation will enable Oracle solutions to perform faster and more reliably."¹⁹³ At the same time, Oracle will have no ability or incentive to "leverage" these technological benefits to harm its rivals up and down the stack. Rather, Oracle will have an incentive to continue offering all of Oracle's and Sun's products as separate components and to ensure that they can be effectively integrated with rival suppliers' products.
366. *Future customers will benefit.* Customers that particularly value high-performance systems will benefit from Sun's software and hardware offering becoming part of the Oracle's portfolio of technologies, as Oracle will be able to offer preconfigured and tuned IT systems. Because of the lower systems integration costs, Oracle will be able to deliver higher performance systems at lower costs. This will strengthen Oracle's ability to compete

¹⁹² See the press release available at http://www.oracle.com/us/corporate/press/015202_EN.

¹⁹³ See <http://www.oracle.com/sun/customer-quotes.html>.

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- against integrated vendors such as IBM and Microsoft/Intel, in particular. By strengthening the perceived quality of Oracle's software portfolio, the Transaction will increase competition for those customers that place a high value on integration.
367. Moreover, all future and existing customers of Oracle and Sun will benefit from the combination of the parties' existing development organisations and the increased investment that Oracle will make into leading technologies such as SPARC and Java.
368. In particular, customers and partners will see immediate benefit with the increased resources put behind the Java programming environment. Java provides critical benefits to developers, who can write programs once and have them deployed in any operating environment. But while that design goal is critical – and enhances platform competition against Windows because it reduces the network effects protecting Windows – it is also critically important that Java's momentum be maintained against the much better-financed .NET environment. That means providing developers the most robust set of programming libraries and the latest tools. This is true in the enterprise markets where Oracle sells complementary products, but also in the consumer/desktop PC market, the mobile handset market and the consumer electronics market, where Oracle has no presence whatsoever, but where Microsoft is dominant.¹⁹⁴
369. ***Benefits for ultimate consumers.*** All of the product, service and relationship enhancements anticipated from the Transaction will lead to reductions in the cost of software or complete IT system deployments, and/or in the quality and effectiveness of those systems for present and future Oracle and Sun customers.
370. To the extent that the Transaction permits cost reductions for users of Oracle and Sun products, these will lower their costs of doing business. This will improve the competitiveness of the user in its own output market, and may in general be expected to be passed through (at least in part) to final consumers.
371. ***Benefits for Oracle and Sun partners.*** The overwhelmingly complementary nature of the Parties' offerings provide a unique opportunity for the merged entity to combine the unique strengths of Oracle's and Sun's partner networks. After the closing, Oracle expects to:

¹⁹⁴ Importantly, in the complementary Java markets in which Oracle competes – middleware and applications – Oracle trails IBM in middleware marketshare and substantially trails SAP in applications market share.

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- Provide Sun partners with opportunities to build relationships and collaboration with Oracle's extensive ecosystem of partners around the world;
- Provide access to Oracle PartnerNetwork (OPN), a unified partner program with a framework for worldwide partnership as well as localised engagement;
- Provide product focus areas within OPN with product, education, marketing, and sales resources around Sun products;
- Work with key system integrators to broaden offerings, achieve efficiencies and drive further innovation;
- Accelerate go-to-market capabilities with Sun's 11,000+ channel partners and introduce new revenue opportunities around Oracle's broad product and services portfolio;
- Continue to invest in Sun's partner ecosystem and develop stronger and closer relationships with Sun's key partners;
- Combine Sun's partner ecosystem with Oracle's partner network of 21,000+ partners to create a leading partner community to drive open enterprise systems.

9.3 *Should you wish the Commission specifically to consider from the outset whether efficiency gains generated by the concentration are likely to enhance the ability and incentive of the new entity to act pro-competitively for the benefit of consumers, please provide a description of, and supporting documents relating to, each efficiency (including cost savings, new product introductions, and service or product improvements) that the parties anticipate will result from the proposed concentration relating to any relevant product.*

For each claimed efficiency, provide:

- (i) *a detailed explanation of how the proposed concentration would allow the new entity to achieve the efficiency. Specify the steps that the parties anticipate taking to achieve the efficiency, the risks involved in achieving the efficiency, and the time and costs required to achieve it;*
- (ii) *where reasonably possible, a quantification of the efficiency and a detailed explanation of how the quantification was calculated. Where relevant, also provide an estimate of the significance of efficiencies related to new product introductions or quality improvements. For efficiencies that involve cost savings, state separately the one-time fixed cost savings, recurring fixed cost savings, and variable cost savings (in euros per unit and euros per year);*

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- (iii) *the extent to which customers are likely to benefit from the efficiency and a detailed explanation of how this conclusion is arrived at; and*
 - (iv) *the reason why the party or parties could not achieve the efficiency to a similar extent by means other than through the concentration proposed, and in a manner that is not likely to raise competition concerns.*
372. For the reasons set out in detail in the preceding Sections of this Form, the Transaction will not give rise to any harm to competition. Rather, Oracle expects that the Transaction will give rise to substantial efficiencies which will benefit overall economic efficiency, the Parties' customers, and ultimately end-consumers, as described above.
373. As a result of the Transaction, Oracle will be able to eliminate duplication and thereby realise immediate reductions in the combined entity's administrative and sales expenditures. As described above, the Transaction will also result in product improvements and more efficient innovation by combining Oracle's very substantial software engineering workforce with Sun's top tier engineers.
374. The common focus of both Oracle and Sun on open standards also give rise to efficiencies. Open standards enable interoperability with a wide range of products and ensure that customers who wish to mix and match or at some point wish to include non-Oracle components in their systems are able to do so easily and without loss of functionality or performance. Since both Oracle and Sun have long public records supporting open standards, this Transaction further solidifies Oracle's commitment to open standards and choice. The combination increases the ability of open-standards vendors to bring the benefits of standards to the marketplace for customers.
375. **Cost savings.** By combining Sun's operations with Oracle's software business, the Transaction will eliminate duplicative expenditures and enhance efficiency.¹⁹⁵ This permits a lasting streamlining of the two Parties' businesses, likely to yield significant cost savings – Oracle estimates that it could realise savings of at least USD 1.5 billion relative to Sun and Oracle costs on a stand-alone basis. As is the case with prior transactions, these substantial cost savings will not only come from Sun. It is anticipated that as the organisations come together, cost saving will come from the Oracle side as well. Customers will benefit from these cost savings, as they will allow Oracle to compete more effectively against its competitors and better respond to competitive pressures by passing these savings in lower prices.

¹⁹⁵ Oracle expects to make headcount reductions across a range of functions and to rationalise facilities between Sun and Oracle.

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376. These savings could not be achieved in the absence of the Transaction: both parties would, on a stand-alone basis, need to retain their separate operations in order to support their respective product lines and development programs. This has resulted in financial losses of over USD 2 billion for Sun in the first nine months of this fiscal year and is unsustainable over the medium term.
377. Customers will benefit from this efficiency because in a competitive market, cost savings (even of costs that are fixed in the short term) enable a firm to compete more effectively against its rivals. Cost savings from combining R&D activities will allow the combined entity to engage in a greater range of R&D projects (projects that might previously have been marginal will become more attractive within a more efficient combined R&D organisation with better access to investible cash), at lower total cost than in the absence of the Transaction. This will in turn result in innovation benefits (*see below*). Other cost savings will contribute to making Oracle a leaner and more effective competitor in the market.
378. ***Innovation benefits.*** A further key efficiency benefit of the Transaction is the incorporation of Oracle's Fusion Middleware and upcoming Fusion Applications, with the reinvigoration of Java, Solaris and SPARC.
379. The Transaction will thus reenergise some of the most important competitive assets in the industry. Sun's poor financial performance has caused it to reduce investment (or slow the growth of investment) in critical technologies such as SPARC, Solaris and Java. Oracle will instantly make all of Sun's products, services and technologies much safer bets for IT buyers focused on long-term viability and seeking assurances related to product roadmaps. Oracle intends to revive the SPARC architecture enabling up-sell and cross-sell opportunities for Oracle and ensuring the continued success of the SPARC/Solaris platform, protecting the investments customers have made.

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SECTION 10

Cooperative effects of a joint venture

10. *For the purpose of Article 2(4) of the EC Merger Regulation, answer the following questions:*

(a) *Do two or more parents retain to a significant extent activities in the same market as the joint venture or in a market which is upstream or downstream from that of the joint venture or in a neighbouring market closely related to this market?*

If the answer is affirmative, please indicate for each of the markets referred to here:

- *the turnover of each parent company in the preceding financial year;*
- *the economic significance of the activities of the joint venture in relation to this turnover;*
- *the market share of each parent.*

If the answer is negative, please justify your answer.

(b) *If the answer to (a) is affirmative and in your view the creation of the joint venture does not lead to coordination between independent undertakings that restricts competition within the meaning of Article 81(1) of the EC Treaty, give your reasons.*

(c) *Without prejudice to the answers to (a) and (b) and in order to ensure that a complete assessment of the case can be made by the Commission, please explain how the criteria of Article 81(3) apply. Under Article 81(3), the provisions of Article 81(1) may be declared inapplicable if the operation:*

- (i) *contributes to improving the production or distribution of goods, or to promoting technical or economic progress;*
- (ii) *allows consumers a fair share of the resulting benefit;*
- (iii) *does not impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives; and*
- (iv) *does not afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.*

380. Not applicable.

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SECTION 11

Declaration

Article 2(2) of the Implementing Regulation states that where notifications are signed by representatives of undertakings, such representatives must produce written proof that they are authorized to act. Such written authorization must accompany the notification.

The notification must conclude with the following declaration which is to be signed by or on behalf of all the notifying parties:

The notifying party or parties declare that, to the best of their knowledge and belief, the information given in this notification is true, correct, and complete, that true and complete copies of documents required by Form CO have been supplied, that all estimates are identified as such and are their best estimates of the underlying facts, and that all the opinions expressed are sincere.

They are aware of the provisions of Article 14(1)(a) of the EC Merger Regulation.

Place and date: Brussels, 30 July 2009

Signature(s): _____

Name(s) and position(s): Thomas Vinje
Partner, Clifford Chance LLP

On behalf of: Oracle Corporation